

T. E. CHANDLER.
Muley Saw-Mills.

No. 157,734.

Patented Dec. 15, 1874.

Fig. 1.

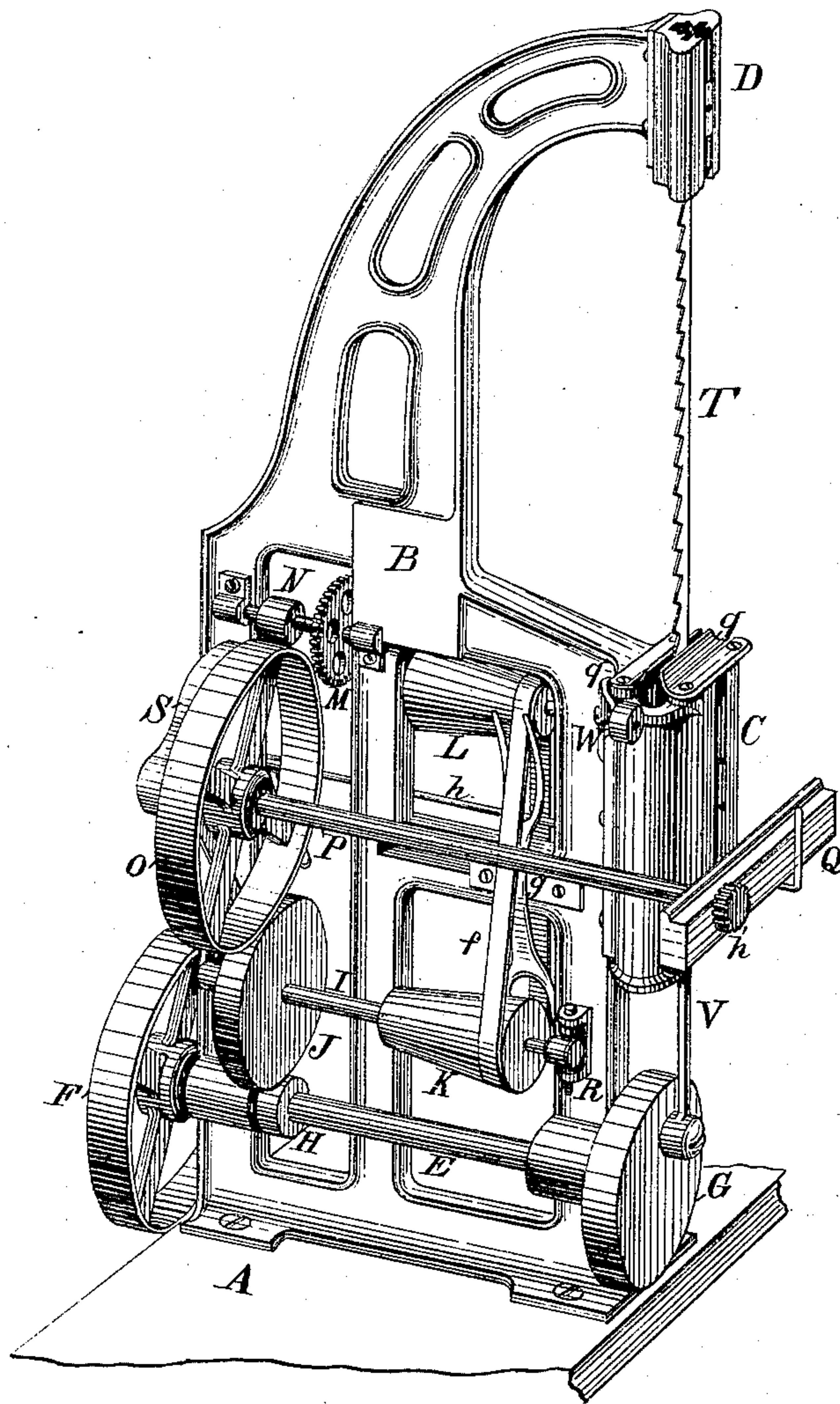


Fig. 3.

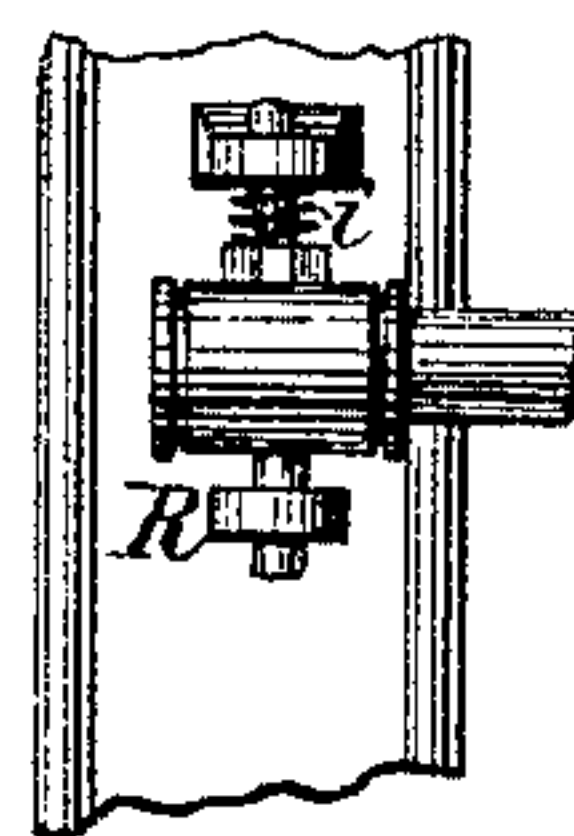
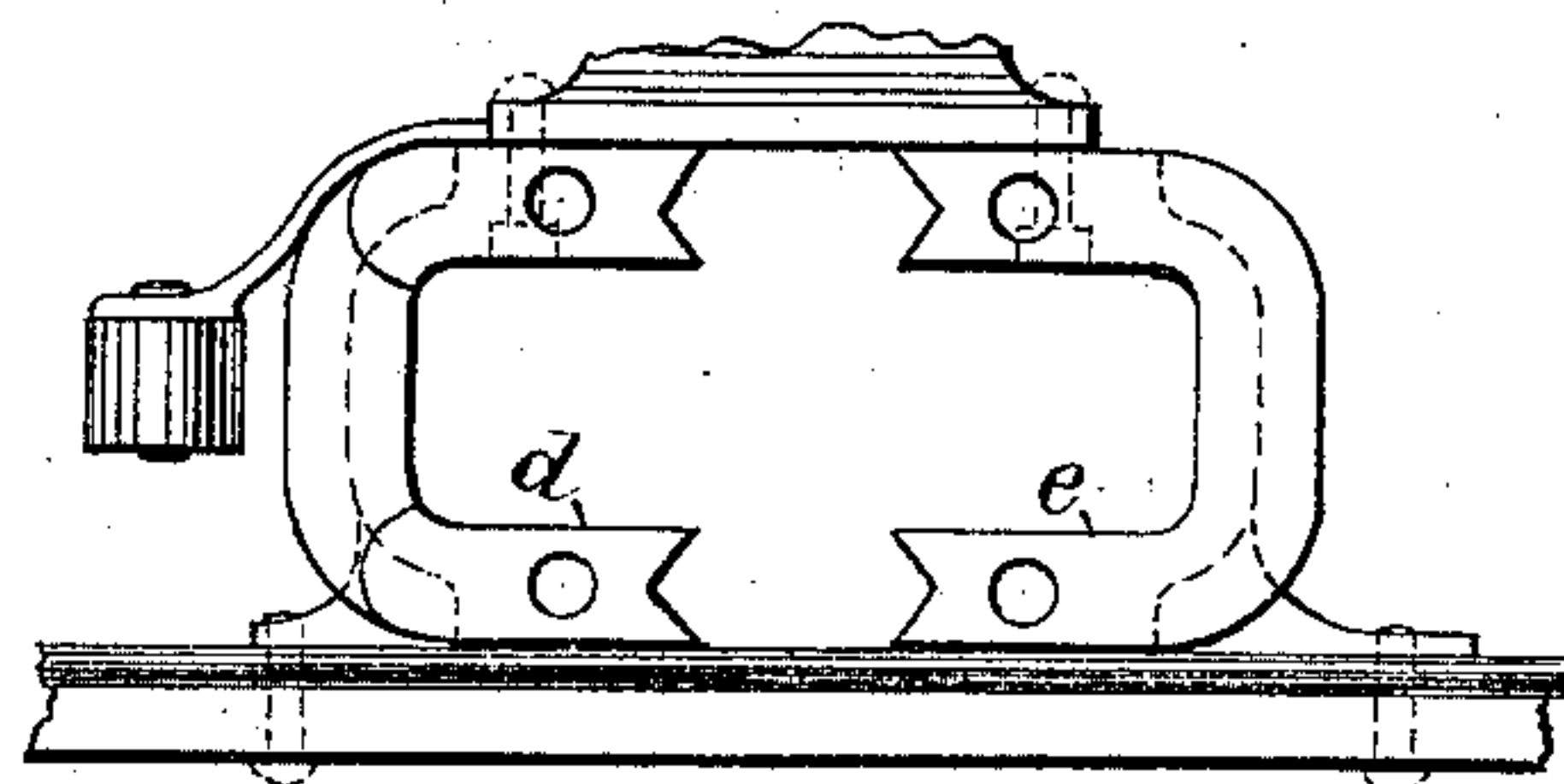


Fig. 2.



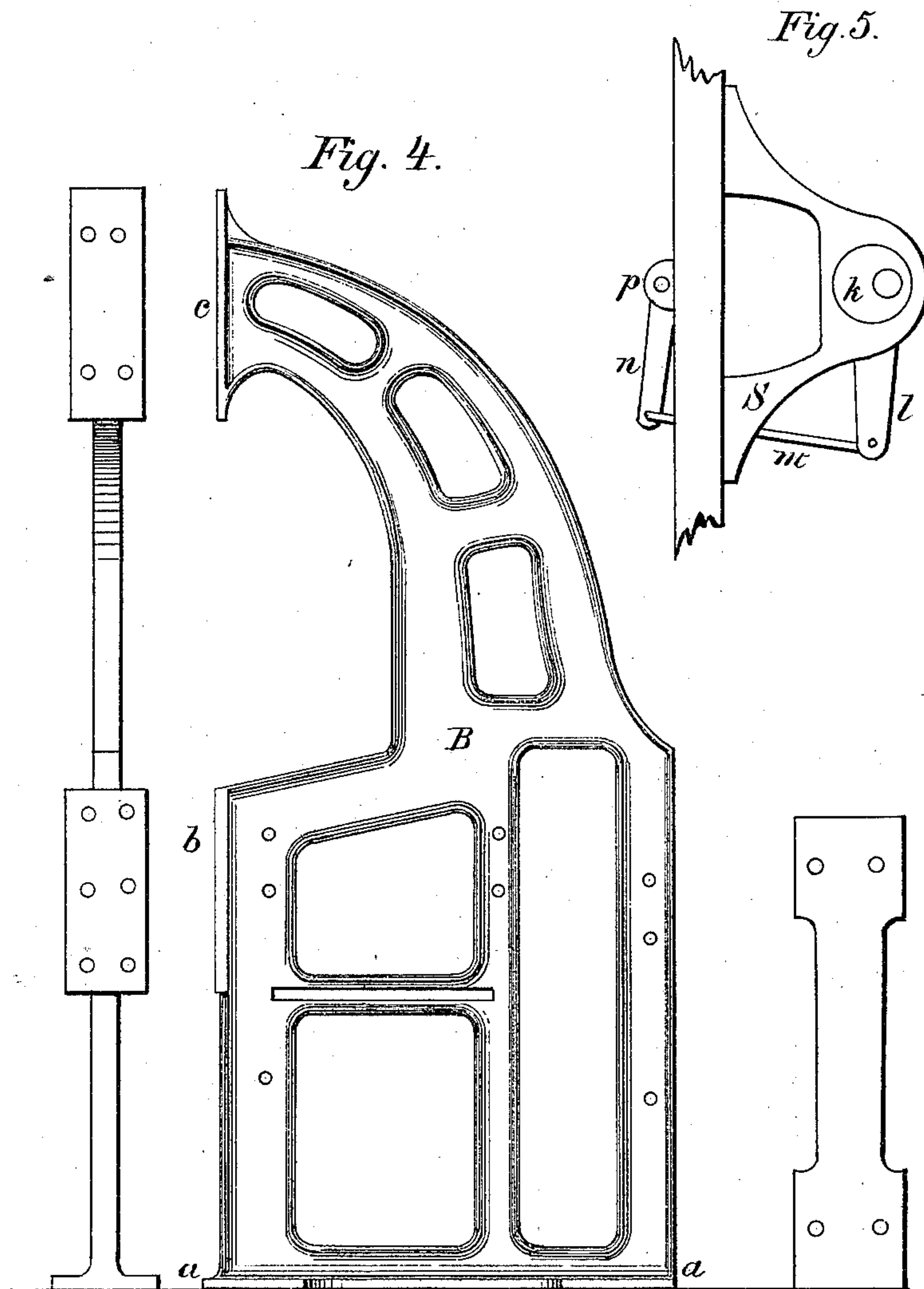
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J. H. Schott.
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Inventor:
Thomas E. Chandler

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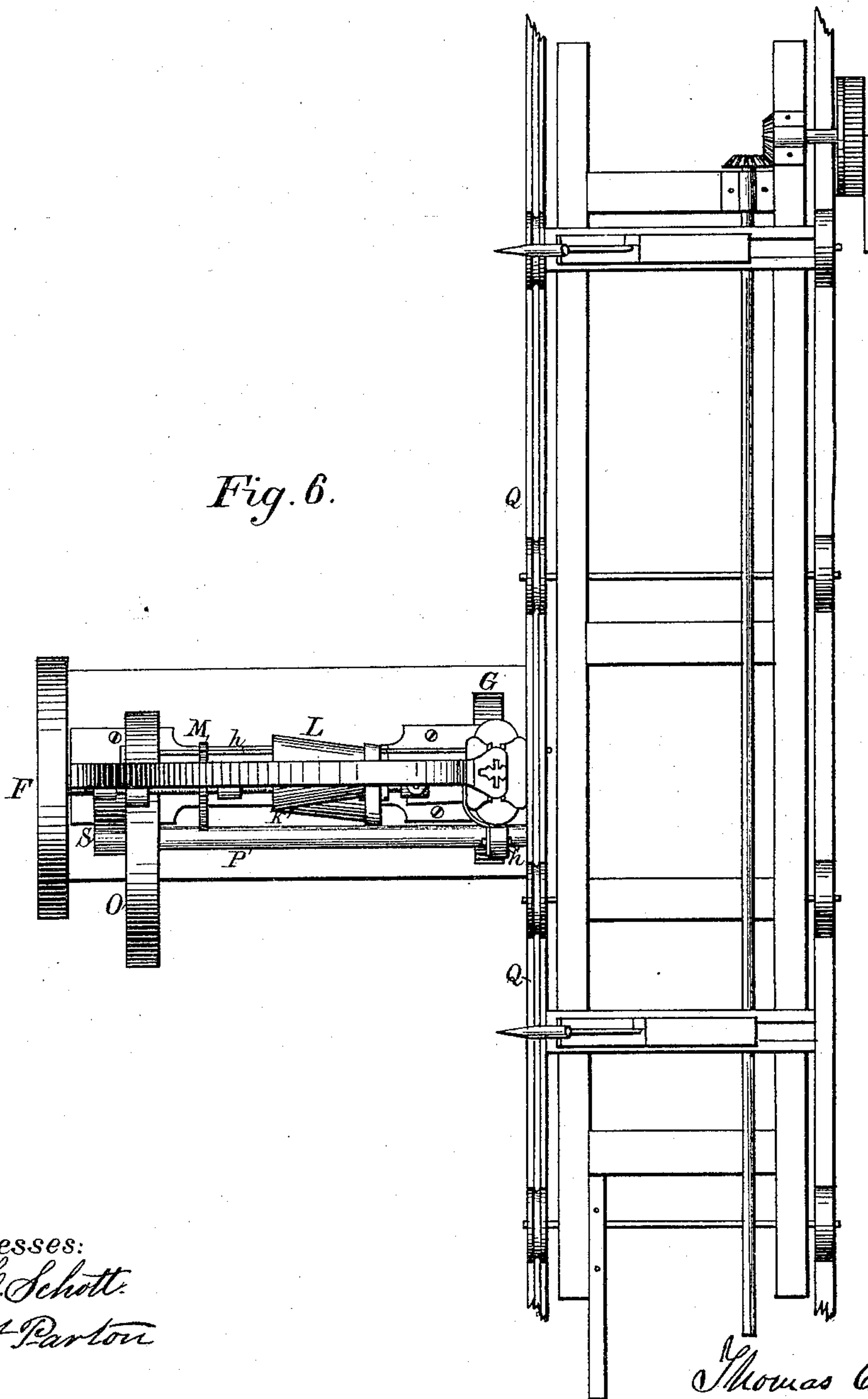
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Fig. 6.



Witnesses:
H. H. Schott.
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UNITED STATES PATENT OFFICE.

THOMAS E. CHANDLER, OF INDIANAPOLIS, INDIANA.

IMPROVEMENT IN MULEY-SAW MILLS.

Specification forming part of Letters Patent No. **157,734**, dated December 15, 1874; application filed November 28, 1874.

To all whom it may concern:

Be it known that I, THOMAS E. CHANDLER, of Indianapolis, in the county of Marion and State of Indiana, have invented certain new and useful Improvements in Muley-Saw Mills; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to which it pertains to make and use the same, reference being had to the accompanying drawings, and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to that class of saw-mills termed muley mills, in which the saw is not strained in a frame or gate, but is allowed to play freely, being retained in its proper path by its own stiffness and two or more sets of lateral guides; the object being to furnish a portable muley-saw mill, that may be readily moved from place to place, being easily and quickly taken down, removed, and erected in a new position, and furnishes a desideratum long needed in many parts of the country where the timber is scattered and but a comparatively small quantity in a place, as is the case in the long-settled portions of the country and upon the prairies of the western States and territories; the construction of the mill being such that it is capable of working efficiently when driven by a belt from the horse-powers in use for thrashing grain, or the ordinary portable steam-engine of six to ten horse power; and the invention consists in the construction and arrangement of the different parts, as will be hereinafter fully described, and then pointed out in the claims.

In the accompanying drawings, Figure 1 is a perspective view of the mill, the log-carriage being omitted, and only a portion of the track upon which it runs shown. Fig. 2 is a top view of the lower slides, the saw-guides being removed. It also shows the position and mode of attaching the bearing-roll in front of the saw. Fig. 3 is a detached view of one of the journal-boxes which support the lower cone-shaft. Fig. 4 presents a side, front, and end view of the iron frame of the machine, all the operating parts having been removed. Fig. 5 is a detail view of the eccentric and devices

by which the motion of the feed-shaft is reversed. Fig. 6 presents a plan of the whole machine, with the log-carriage in position.

A represents the bed upon which the superstructure is erected, and may consist of a single piece of heavy timber, of such length as to furnish a bed, to which is securely bolted the frame which carries the operative parts of the mill, and extending beneath the carriage and track to its opposite side, thus preventing lateral vibration in the frame. This frame B is of cast-iron, of the shape shown in Fig. 4, its lower edge being expanded into a broad flange, *a*, projecting upon either side, and perforated with apertures for the reception of the bolts which secure it to the bed. Another pair of flanges, at *b*, are intended for the reception of the lower slides, and to which they are bolted, the upper slides being secured to the flanges *c* at the top of the frame, these flanges for both upper and lower slides being planed true with each other, so that when they are in position they shall be perfectly in line. Suitable openings are made in the frame to reduce its weight to the lowest point consistent with the strength and rigidity required. They also form spaces within which the cone-pulleys and friction-wheels work, they being thus, in a great measure, protected by it from injury. The lower slide C is composed of the two parts *d* and *e*, each of them having a U-shaped section, with V-shaped grooves at the extremity of each leg, in which reciprocates the cross-head, to which is attached the lower end of the saw. The piece *d* has its upper end lowered a little and rounded in front, so as to afford a ready means of escape for the sawdust as it falls from the log, and both slides are planed perfectly parallel upon their opposite sides, (one of which is furnished with the broad flanges *p*,) for a purpose which will be hereafter described. The upper slide D is cast in one or more pieces, with cross-shaped longitudinal grooves passing through it, in which the cross-head, attached to the upper end of the same, reciprocates. The back of this slide is planed parallel with the groove, so that, when it is placed in position upon the frame and bolted to the flanges *c*, its longi-

tudinal groove shall be in a plane parallel to that of the V-shaped grooves in the lower slides.

The driving-shaft E revolves in suitable journal-boxes attached to the frame B, and has secured upon one end the driving-pulley F, and upon the other the crank-wheel G, while, occupying an intermediate position, and between the journal-boxes, is the friction-wheel H, from which is driven the shaft I by means of the friction-wheel J.

The journal-boxes R, in which the shaft I revolves, are so constructed as to have a limited vertical movement controlled by the spiral spring *i*, which surrounds the guiding-spindles of the boxes, thus allowing the friction-wheels to give way to any extraneous matter, as chips or sawdust, that may fall upon them, thereby preventing breakage or disarrangement of the parts. The shaft I also carries the cone-pulley K. From this pulley another cone, L, is driven by the belt *f*, the position of the belt upon the cones being controlled by the movable shifter *g*. Upon the outer end of the shaft of the cone-pulley L is a pinion, which gears with and drives the gear-wheel M, which is secured upon the short shaft carrying the friction-wheel N, and this wheel, in feeding the log to the saw, is made to impinge upon the friction-wheel O upon the feed-shaft P. This shaft passes through and is journaled at one end in the track Q, and carries upon its overhanging end the feed-pinion *h'*, which gears into a rack-bar secured to the under side of the carriage. The opposite end of the shaft P rests in an eccentric, *k*, carried by the bracket S. An arm, *l*, is attached to and depends from the eccentric. To the lower end of this arm is pivoted the rod *m*, which is connected to the lower end of the arm *n* of the rock-shaft *p*. Another arm or lever is attached to the opposite end of the rock-shaft and projects upward.

It is evident that a movement of this arm or lever, either by the attendant or by suitable projections upon the log-carriage, will give a partial rotation to the rock-shaft *p*, and the connecting arms and rod to the eccentric, which will throw the shaft P, and with it the friction-wheel O, toward one or the other of the friction-wheels J N.

The contact of the wheel O with the wheel N revolves the feed-shaft in such a direction as to feed the log toward the cutting-edge of the saw, while a reverse movement of the log is produced when the wheel O is brought in contact with the wheel J.

It will be observed that the train of gearing by which the feeding is performed produces a slow movement of the log and its carriage, while the reverse or gidding motion is much accelerated.

To allow the log-carriage to remain at rest,

it is only necessary to adjust the eccentric so that the friction-wheel O shall not be in contact with either of the others.

The saw T is operated by the pitman V from the crank-wheel G, and is guided by cross-heads moving within the slides C and D. It is further guided in its reciprocation by the inclined plates *q*, which are attached to the top of the slides C. They also serve the purpose of preventing the sawdust and other refuse from getting in between the slides and impeding the motion of the saw, as well as carrying off the oil or other lubricant used upon them.

A supporting-roll, W, is attached to a bracket, which is bolted to the flange *b* of the frame. This roll is found to be of great service in sawing small timber, as it prevents such timber from springing under the downward thrust of the saw.

The log-carriage is of the same construction as those used for cutting lumber with a circular saw, consisting of two side pieces connected by suitable girts, and carrying the head-blocks, upon which the log to be sawed is secured, the whole carriage resting upon two sets of wheels, one set of which—namely, those upon that side nearest the saw—having a grooved periphery, which runs upon a correspondingly-shaped track. This track Q is secured to the frame by bolts, which pass through lugs upon the slides C. As care was taken to render this face of these slides perfectly parallel with the plane of the saw, it is evident that, in order to place the track in the same plane, it is only necessary to dress it straight, and bolt it to the face of the slides. This will be found to be a great saving of both time and labor in setting up the mills, as all the moving parts are thus easily brought into their proper relations with each other.

This machine is found to possess many of the best features of both the muley and circular saw-mills. The side cut, obtained by using the iron frame which supports the saw wholly from one side, with the carriage and head-blocks of the circular mill, enable it to produce lumber without stub-short, while the largest logs may be cut with a comparatively small power.

Having thus described my invention, I claim as new and desire to secure by Letters Patent the following:

1. The frame B and slides C, in combination with the track Q, as and for the purpose set forth.
2. The frame B and slides C, in combination with the inclined plate-guides *q* and supporting-roll W, as specified.
3. The feed-shaft P, one end of which is journaled in the track Q, and the opposite end in the eccentric *k*, in combination with the shifting devices, consisting of the arm *l*, rod *m*, and shaft *p*, substantially as specified.

4. The shaft I, carrying the friction-wheel J and cone-pulley K, and journaled in the spring-boxes R, in combination with the belt f, cone-pulley L, gears M, friction-wheels N O, and the mechanism by which the latter is operated, substantially as shown and described.

In testimony that I claim the foregoing as my own I hereunto affix my signature in presence of two witnesses.

THOMAS E. CHANDLER.

Witnesses:

C. D. IRELAN,
M. P. HARWOOD.