(No Model.)

E. M. BIRDSALL & G. STRINGER.

FEED MECHANISM FOR SAW MILL CARRIAGES.

No. 319,181. Patented June 2, 1885.

Fig. 1

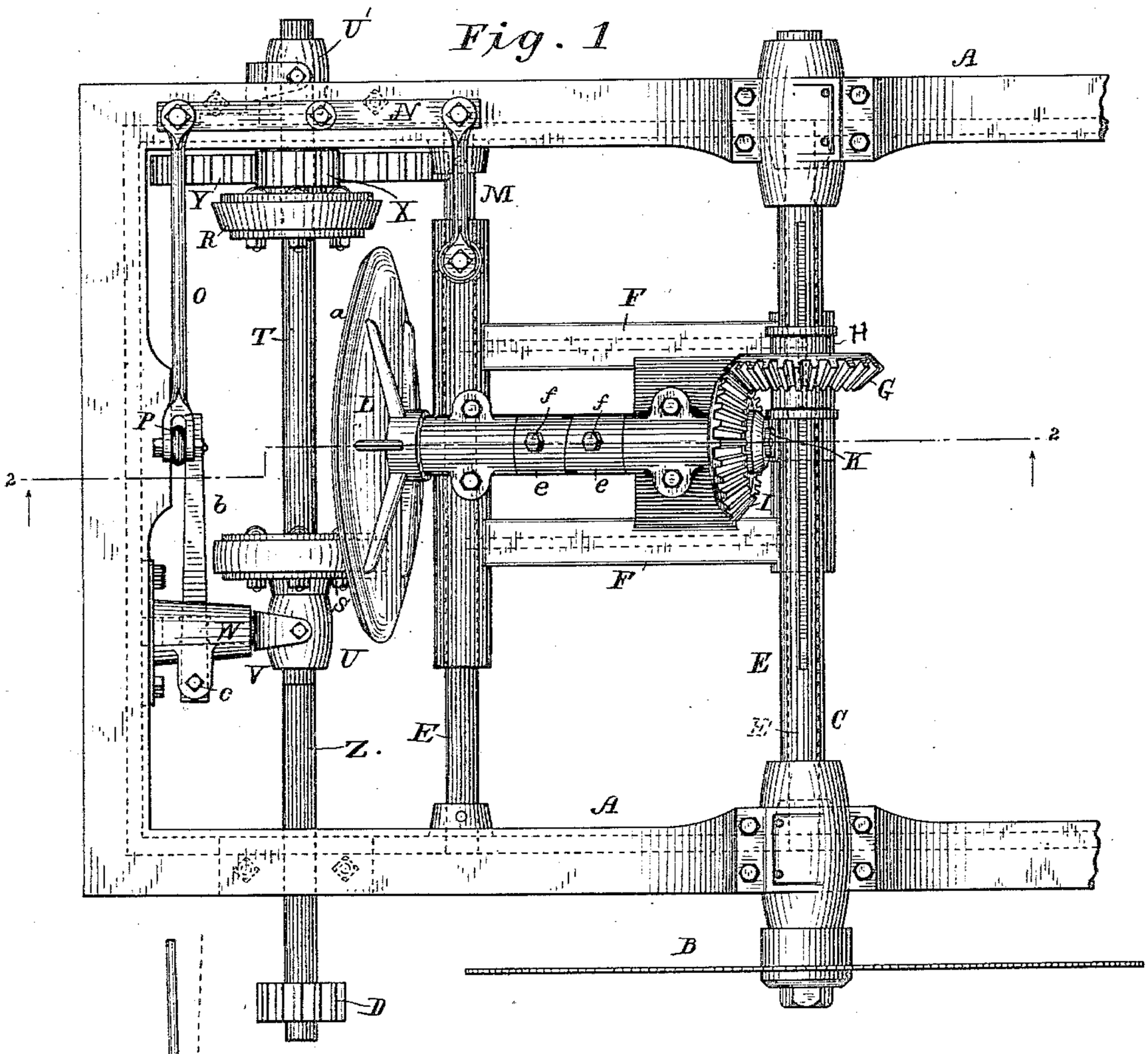
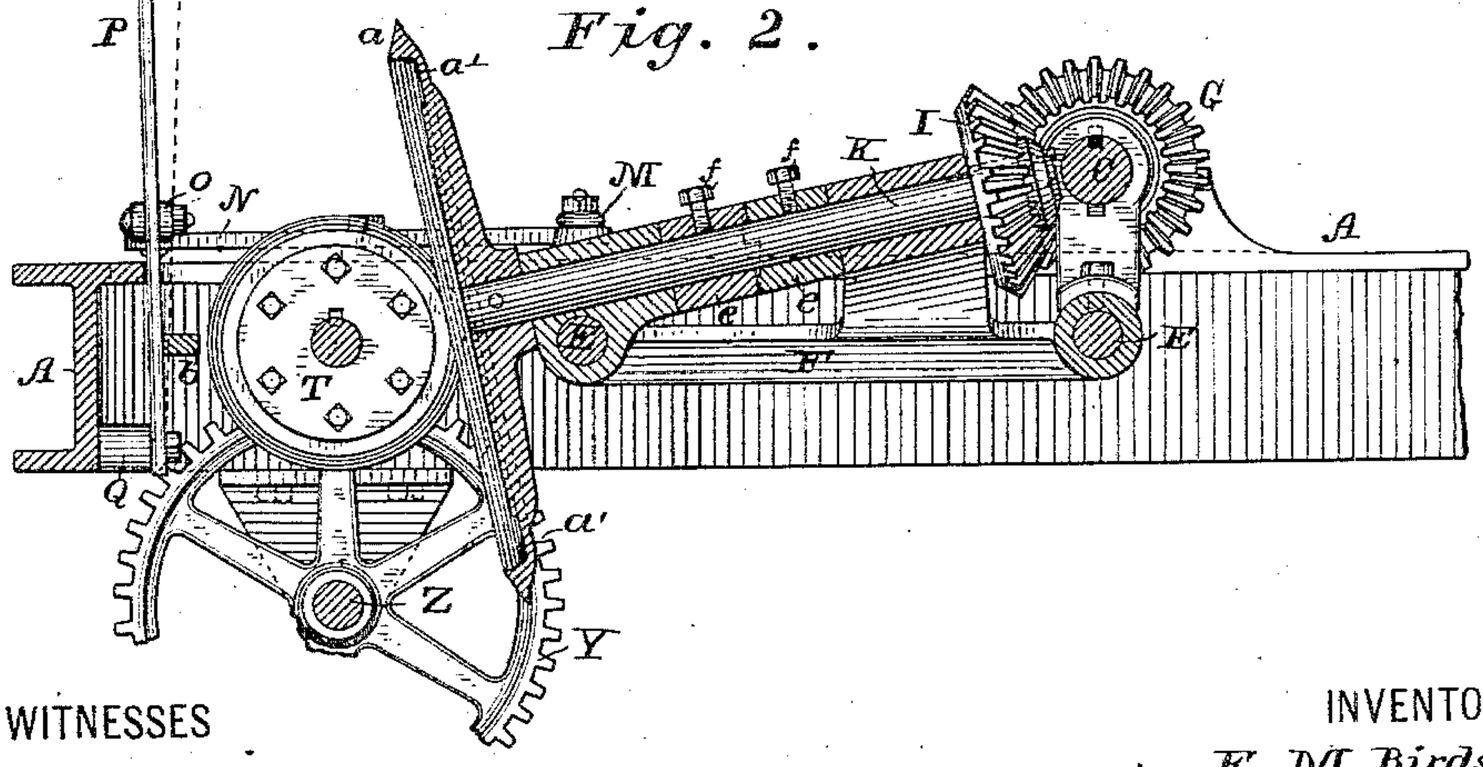


Fig. 2.



WITNESSES

Ed. A Newman.

Al. C. Newman.

INVENTORS

E. M Birdsall.

Geo. Stringer.

By their Attorneys

Baldwin, Hopkins & Peyton

UNITED STATES PATENT OFFICE.

EDGAR M. BIRDSALL AND GEORGE STRINGER, OF AUBURN, NEW YORK;
SAID STRINGER ASSIGNOR TO SAID BIRDSALL.

FEED MECHANISM FOR SAW-MILL CARRIAGES.

SPECIFICATION forming part of Letters Patent No. 319,181, dated June 2, 1885.

Application filed March 20, 1885. (No model.)

To all whom it may concern:

Be it known that we, EDGAR M. BIRDSALL and GEORGE STRINGER, both of Auburn, in the county of Cayuga and State of New York, have invented certain new and useful Improvements in Mechanism and Gearing for Controlling the Movements of Carriages of Saw-Mills, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of our improvements, and Fig. 2 a vertical section on the line 2 2 of Fig. 1.

The object of our improvements is particularly to regulate the feed of saw-mill carriages which carry the timber to be sawed forward to the saw.

Referring to the letters upon the drawings, A indicates a suitable frame, upon which a circular saw, B, is mounted on a shaft, C, in suitable bearings. Motion may be communicated to this shaft and saw in any usual manner, and a carriage having a rack (such as is usual, and is not illustrated) may be provided, the rack to engage with the rack-pinion D, which causes the travel of the carriage with its timber forward to the saw, and back again after the sawing is finished.

E E indicate rods or bars parallel with the saw-shaft, and supported at either end upon the main frame.

F indicates a sliding frame mounted upon the bars E E, and adapted to slide back and forth transversely of the main frame upon these supports. One of the bars E, being under the shaft C, is indicated by dotted lines in Fig. 1.

G indicates a bevel-pinion provided with a hub, H, connected to the saw-shaft by a spline and groove, and which is adapted to slide under the pressure of the sliding frame back and forth upon the saw-shaft. This pinion gears with a pinion-wheel, I, mounted by means of a spline and groove upon a disk-shaft, K, having its bearings upon the sliding frame and carrying at its opposite end a friction-disk, L. The construction and organization of the parts described, it will be observed, are such that the pinion G always partakes of the motion of the saw-shaft, whatever may be its position upon the shaft, and drives the wheel I, the shaft K, and the disk L.

In order to move the sliding frame and the gearing just described, we provide a series of links and levers, M being a link connected with the sliding frame and pivoted at its opposite end to the lever N, pivoted near its center, which in turn is pivoted to the link O, which in its turn is pivoted to the vertical lever P, fulcrumed upon the main frame at Q. Movement of the upper end of the lever P to the right and left transversely of the main frame will serve to move the sliding frame and the parts it carries back and forth upon its two supports transversely of the main frame, as will be understood from the drawings. Such motion will cause the disk L to come in contact alternately with the two friction-wheels R and S, fixed upon the shaft T, which has its bearings at one end in the main frame, and at the other end in a pivotal bearing, U, supported by a movable yoke, V, which in turn is supported in a hollow support or bearing, W, fastened to the main frame, as illustrated. The shaft T carries a pinion, X, which gears with a wheel, Y, upon the shaft Z, to which the rack-pinion D is fixed. Whenever the disk L is in contact with the friction-wheel R, the wheel runs on an annular track, *a*, on the disk near its margin, and in such a direction as to cause the carriage to run back rapidly after the sawing is completed. At the same time the wheel S will run in the annular groove *a'* of the disk, and be out of contact with the disk. When the disk is in contact with the friction-wheel S, it is out of contact with wheel R, and it causes wheel S to run in the opposite direction, which drives the shaft Z in the opposite direction slowly, which drives the carriage forward toward the saw gradually to feed the timber to be sawed. An arm, *b*, is pivoted at one end to a stud, *c*, and connected with the movable yoke V. By means of the lever P the disk may be brought over opposite the friction-wheel S, and then the lever may be pushed forward, as indicated by the dotted lines in Fig. 2, which will push the free end of arm *b* forward and cause friction-wheel S to bear against the disk with suitable force

to give it motion and accomplish the proper feed of the log-carriage. Through the instrumentality of the lever P the friction-disk can be shifted and the friction-wheel S be made to impinge against it at points more or less remote from the center of the disk, as may be desired, whereby greater or less speed of rotation will be given to the friction-wheel S and a correspondingly slow or rapid feed communicated to the log-carriage, at the will of the operator.

The bearing of the shaft T at its outer end upon the main frame is pivoted, as illustrated, so as to allow of the forward movement of the inner end of the shaft where the friction-wheel S is mounted.

As there will naturally be some wear upon the friction-wheels and disk, we provide adjusting or compensating mechanism.

We provide two sleeves, *e*, with inclined adjacent ends between the end bearings of the disk-shaft, and we make the shaft slightly longer than would be necessary if it were not for wear. The sleeves are held firmly in place upon the shaft by means of set-screws *f*. Fig. 2 illustrates the shaft in the position in which it would be in a new machine. Now, we will suppose the disk or the friction-wheels have become worn, and it is desirable to move the disk backward slightly. In that case the set-screws are released, when the shaft can be driven back as far as desired, the spline-and-groove connection with the pinion I admitting of such movement of the shaft. The sleeves, being inclined upon their faces, can be turned and slightly separated, so as to compensate for their own wear upon the opposite ends of the shaft-bearings. The set-screws can then be turned to fasten the sleeves firmly to the shaft, so that all wear and lost motion will be compensated.

What we claim to be novel in the above-described organization of mechanism is—

1. In a circular-saw-carriage apparatus, the combination, with the main frame, of the shaft C, mounted in suitable bearings thereon, and carrying the saw B, and the bevel-pinion G, sliding by means of an ordinary spline and groove, the sliding frame F, mounted upon the cross-bars E and the shaft C, and carrying the disk-shaft K, the disk L, and the bevel-pinion I, geared with the pinion G, so that reciprocating sliding movement may be simultaneously communicated to the parts G, I, F, K, and L without disturbing their operative relations to each other or to the saw-shaft and saw, substantially as set forth.

2. In a circular-saw-carriage apparatus, the combination of the sliding frame F, mounted as described, disk-shaft K and disk L, mounted thereon, and the bevel-pinions I and G, communicating motion from shaft C to shaft K and disk L, with the friction-wheels R and S, mounted on shaft T, for alternately contacting with the disk L, substantially as and for the purpose set forth.

3. In a circular-saw-carriage apparatus, the combination of the sliding frame F, mounted on saw-shaft C and cross-bars E, engaging pinion-wheels G and I, rotating the shaft K, and disk L, with the lever and link connections M, N, O, and P, as described, pivoted to the main frame, for sliding the frame F and the operative parts it carries, and the pinion G, substantially as set forth.

4. In a circular-saw-carriage apparatus, the combination of the pivoted lever P, the pivoted link-connections M N O, and the sliding frame F, mounted on saw-shaft C and cross-bars E, the mechanism it carries, and pinion G, with the arm *b* and its movable yoke-connection with the endwise-moving shaft T, carrying the friction-wheels R and S, substantially as set forth.

5. In a circular-saw-carriage apparatus, the pinion G, mounted on the saw-shaft, the sliding frame mounted as described, and the disk L, mounted thereon, connected with the pinion G, and having annular track *a* and groove *a'*, in combination with the friction-wheels R S, mounted on the endwise-moving shaft T, whereby they may be alternately brought into contact with the disk L, substantially as set forth.

6. In a circular-saw-carriage apparatus, the combination, with the disk-shaft K and its bearings, the disk L, and the pinion I, connected to the disk-shaft by a sliding connection or spline and groove, of sleeves *e* and their set-screws, to compensate for wear upon the disk and friction-wheels R S, substantially as set forth.

In testimony whereof we have hereunto subscribed our names.

EDGAR M. BIRDSALL.
GEORGE STRINGER.

Witnesses:
T. J. MOSHER,
JNO. E. BURR.