No. 642,957. Patented Feb. 6, 1900.

S. W. BUTTERFIELD.

FEED ATTACHMENT FOR WOOD PULP CHIPPERS.

(Application filed Sept. 12, 1899.)

(No Model.) 2 Sheets—Sheet 1.

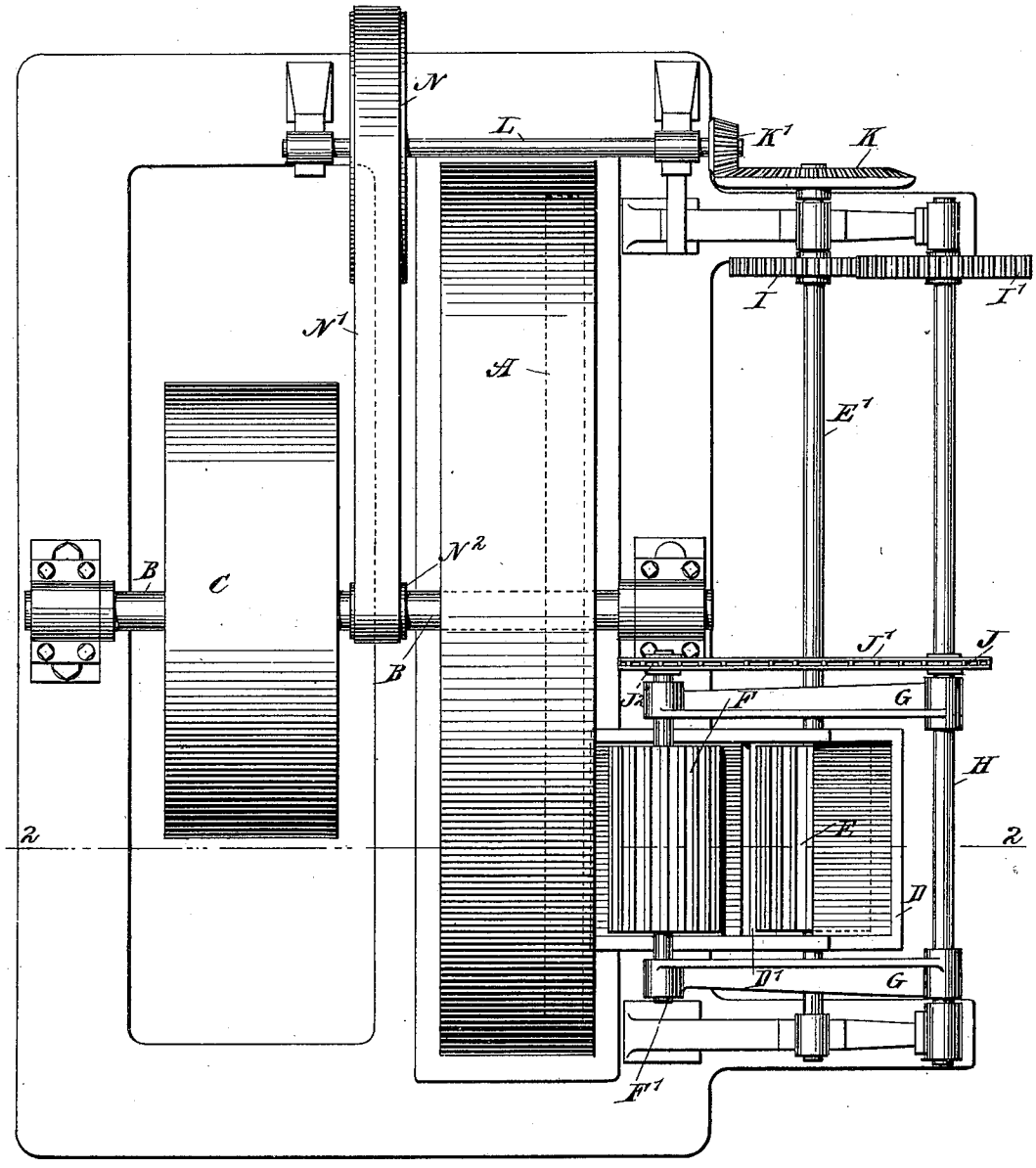


Fig. 1.

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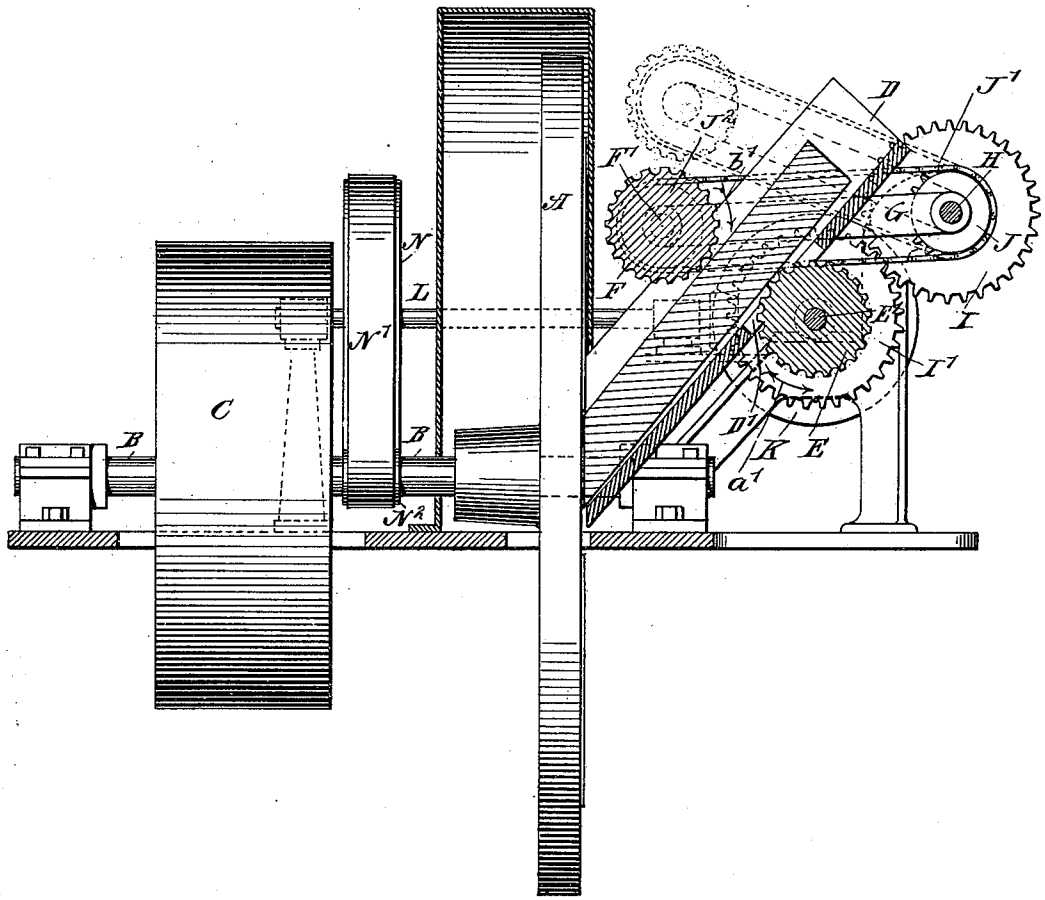
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Fig. 2.



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FEED ATTACHMENT FOR WOOD-PULP CHIPPERS.

SPECIFICATION forming part of Letters Patent No. 642,957, dated February 6, 1900.

Application filed September 12, 1899. Serial No. 730,202. (No model.)

To all whom it may concern:

Be it known that I, SAMUEL W. BUTTERFIELD, a citizen of the United States, residing at Three Rivers, in the Province of Quebec and Dominion of Canada, have invented a new and Improved Feed Attachment for Pulp-Wood Chippers, of which the following is a full, clear, and exact description.

The invention relates to machines for reducing timber to chips, which are to be transformed by the aid of chemicals into wood-pulp.

The object of the invention is to provide a new and improved feed attachment for pulp-wood chippers for feeding timber to a revolving knife-wheel, for the knives thereof to cut chips of uniform thickness, which is essential to a proper disintegration when the chips are subjected to the action of the chemicals to insure the production of a high grade of wood-pulp.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

A practical embodiment of my invention is represented in the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in both the views.

Figure 1 is a plan view of the improvement as applied, and Fig. 2 is a sectional side elevation of the same.

The pulp-wood chipper of any approved construction is provided with the usual revoluble chipper-head A, carrying on its front a plurality of radially-disposed knives projecting from the face a desired distance to cut chips of a desired thickness. The cutter-head A is secured on a shaft B, journaled in suitable bearings on the frame of the chipper, and on said shaft is secured a pulley C, connected by belt with other machinery for imparting the necessary motion to the shaft B and the chipper-head A. The timber is fed lengthwise to the front face of the chipper-head A and to the knives thereof down an inclined feed-table D, in which is formed a transverse opening D′, through which extends the peripheral face of a driven feed-roller E, having its shaft E′ journaled in suitable bearings on the framework of the chipper, as is plainly illustrated in the drawings. Thus the timber passing down the feed-table is fed downward by coming in contact with the feed-roller E, rotating in the direction of the arrow *a′*. The top of the timber is engaged by a second feed-roller F, rotating in the direction of the arrow *b′*, the contact of the peripheral face of this roller F with the timber being somewhat in advance of the contact of the roller E with the under side of the timber. The two rollers E and F are preferably grooved or corrugated transversely, as is plainly indicated in Fig. 2, to insure a proper gripping and feeding of the peripheral faces of the rollers on the timber.

The shaft F′ of the roller F is journaled in arms G, fulcrumed loosely on a shaft H, running parallel to the shaft E′ and geared thereto by gear-wheels I I′, in mesh with each other, as indicated in Fig. 1. On the shaft H, alongside one of the arms G, is secured a sprocket-wheel J, connected by a sprocket-chain J′ with a sprocket-wheel J^2 on the shaft F′, so that when the shaft H is rotated a positive rotary motion is transmitted to the roller F in the direction of the arrow *b′* by the sprocket-wheels J J^2 and the sprocket-chain J′.

A rotary motion is given to the shaft E′ from the cutter-head shaft B, and for this purpose one end of the shaft E′ is provided with a bevel gear-wheel K, in mesh with a bevel-pinion K′, secured on a shaft L, journaled in suitable bearings on the framework of the chipper. On the shaft L is secured a pulley N, connected by a belt N′ with a pulley N^2 on the cutter-head shaft B, so that when the latter is rotated a rotary motion is given to the shaft L, and the motion of the latter is transmitted by the bevel-pinion K′ and gear-wheel K to the shaft E′ to positively rotate the roller E, and as the shaft E′ is connected by the meshing gear-wheels I′ I with the shaft H the latter is also rotated to drive the roller F by the sprocket-wheels J J^2 and sprocket-chain J′, as above mentioned. By hanging the roller F on the loosely-swinging arms G it is evident that the said roller can readily accommodate itself to different thicknesses of timber.

When the machine is in operation and the timber is fed down the feed-table D between the rollers E and F, then the said timber is

held against upward movement by the action of the rollers rotating in the directions described to insure a positive feeding and holding of the timber against the face of the chipper-head, so that the knives thereof cut chips of a uniform thickness at all times. Furthermore, the action of the rollers E and F on the timber holds the latter in such firm position that it is not liable to vibrate during the time the knife on the chipper-head cuts the chips off the timber. As the chipper-head usually makes about four hundred revolutions per minute, it is evident that the positive feed of the timber by the rollers E and F is essential to the proper workings of the machine, especially as the said rollers are positively driven and rotate in unison with the revolving chipper-head.

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

1. In a feed attachment for wood-pulp chippers, the combination with a rotary cutter, an inclined feed-table having an opening in its bottom, a lower feed-roller below the table and operated from the cutter-shaft, said roller projecting into the opening of the feed-table, of a shaft in rear of the feed-roller shaft and geared therewith, arms mounted loosely on said shaft, an upper feed-roller mounted in the free ends of the arms and adapted to engage the upper surface of the timber, and means for operating said upper feed-roller from the shaft upon which its arms are mounted, substantially as described.

2. In a feed attachment for wood-pulp chippers, the combination with a rotary cutter, and an inclined table having an opening in its bottom, of a shaft below the table and provided with a gear-wheel, a feed-roller mounted on the shaft and projecting into the opening of the table, means for operating the feed-roller shaft from the cutter-shaft, a shaft in rear of the feed-roller shaft and provided with a gear-wheel meshing with the gear-wheel thereof, arms mounted loosely on the said shaft, an upper feed-roller mounted in the free ends of the said arms, and means for operating the upper roller from the said shaft, substantially as described.

3. In a feed attachment for wood-pulp chippers, the combination with a rotary cutter, an inclined feed-table having an opening in its bottom, a shaft below the feed-table and provided with a gear-wheel, a lower feed-wheel on the shaft and projecting into the opening of the feed-table, and means for operating the shaft of the feed-roller from the cutter-shaft, of a shaft in rear of the shaft of the said roller and provided with a gear-wheel meshing with the gear-wheel of the feed-roller shaft, arms loosely fulcrumed on the said shaft, an upper roller mounted in the free ends of the arms, a sprocket-wheel on the shaft of the said upper roller, a sprocket-wheel on the shaft upon which the arms are mounted, and a sprocket-chain passing around said wheels, substantially as described.

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