

(No Model.)

G. F. EVANS.

MACHINE FOR REDUCING WOOD TO PULP AND FIBER.

No. 279,551.

Patented June 19, 1883.

Fig. 2.

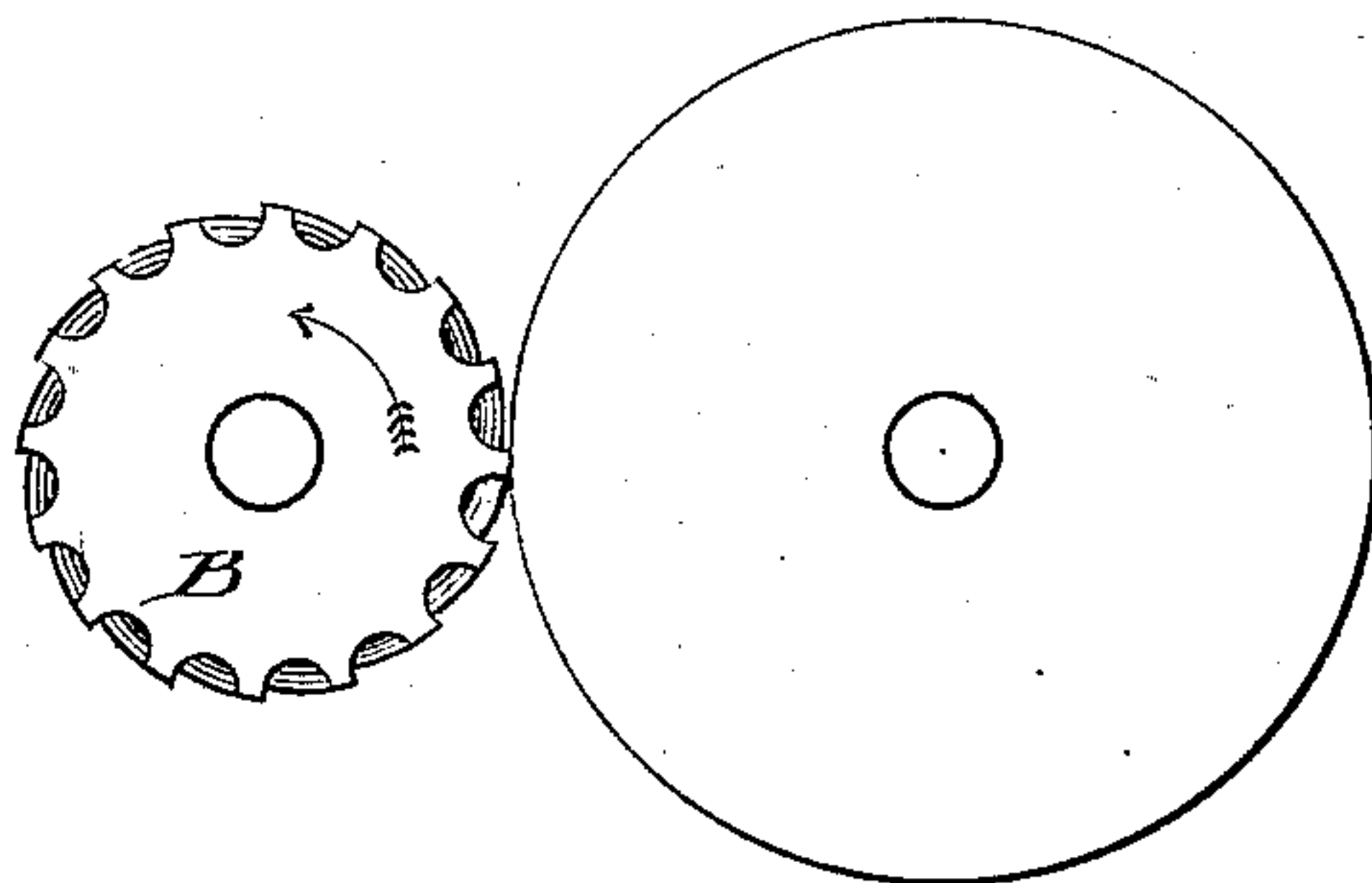


Fig. 3.

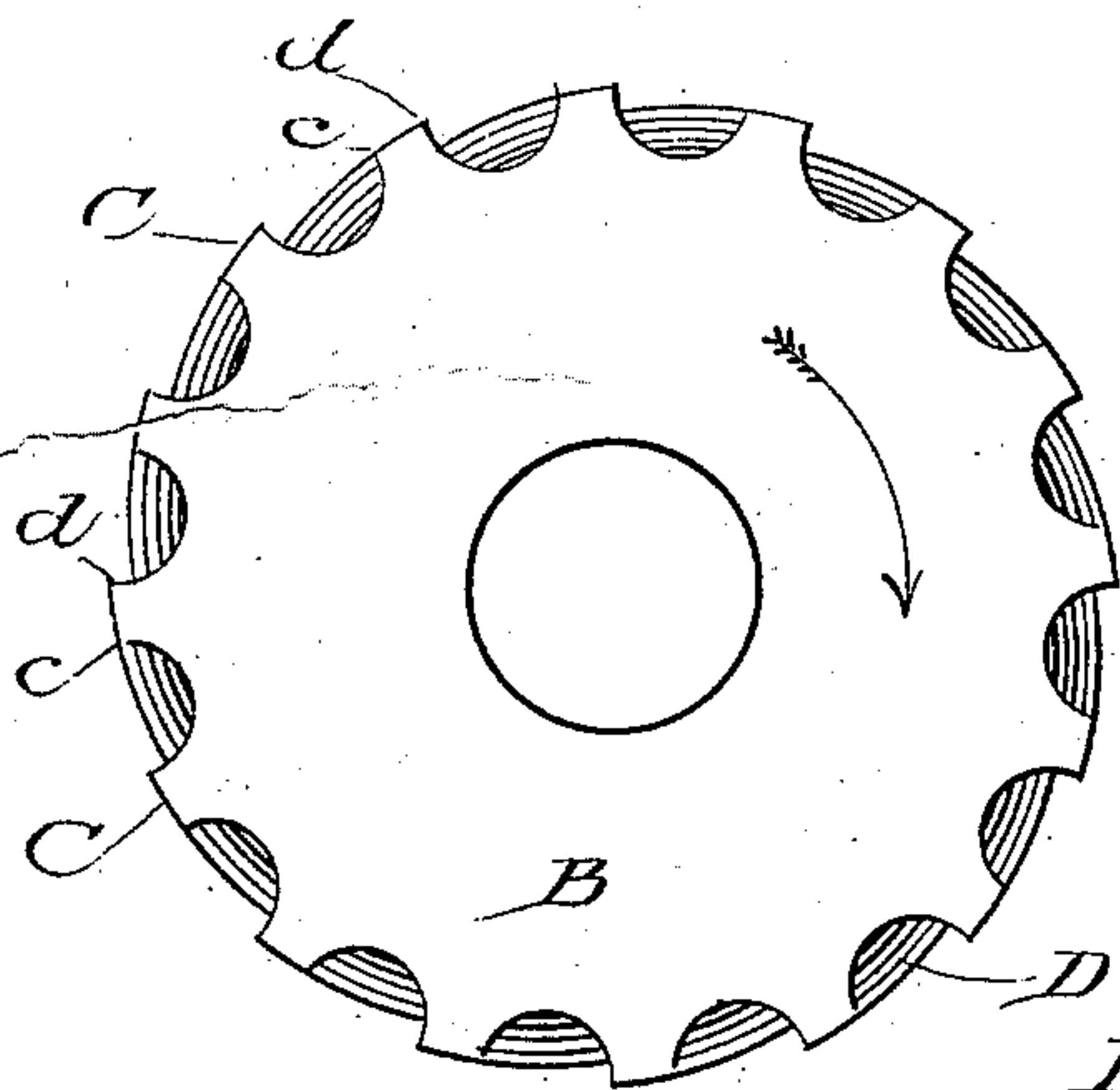
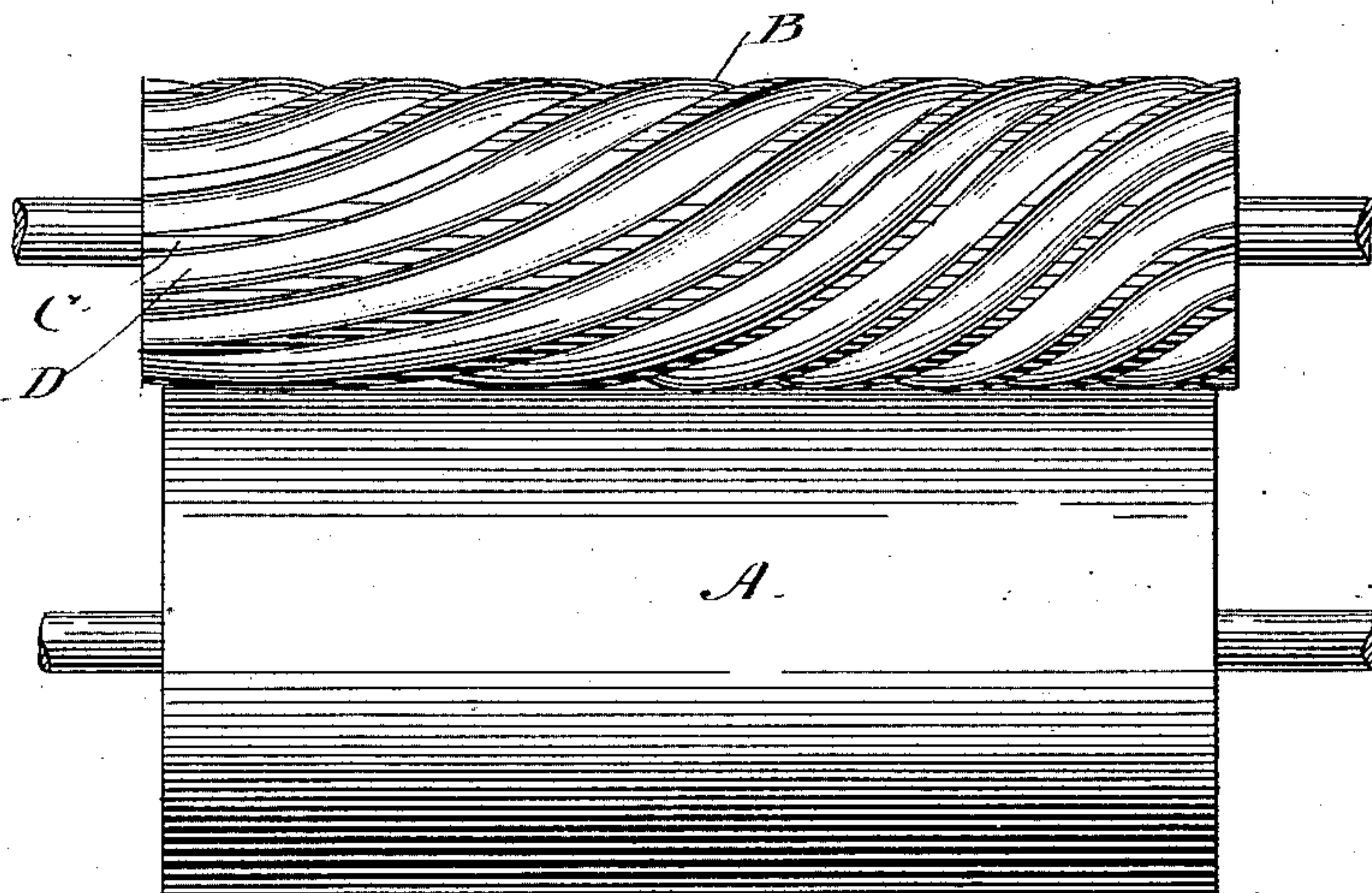


Fig. 1.



Witnesses:

Harold J. Brooks
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UNITED STATES PATENT OFFICE.

G. FRANK EVANS, OF MECHANIC FALLS, MAINE.

MACHINE FOR REDUCING WOOD TO PULP AND FIBER.

SPECIFICATION forming part of Letters Patent No. 279,551, dated June 19, 1883.

Application filed March 11, 1881. Renewed May 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, G. FRANK EVANS, a citizen of the United States, residing at Mechanic Falls, in the county of Androscoggin and State of Maine, have invented a new and useful Improvement in Machines for Reducing Wood to Pulp and Fiber, of which the following is a clear and exact description, when taken in connection with the accompanying drawings, forming a part thereof, in which—

Figure 1 designates a top view of a scraping-cylinder and body of wood to be operated upon in position for action. Fig. 2 is an end view of Fig. 1. Fig. 3 is an enlarged end view of scraping-cylinder.

The object of my invention is to provide means for scraping the fibers from a moving body of wood without the aid of water or steam, &c., as a softening medium, and to prevent charring or injury of said fibers by the heat generated by frictional contact; and to this end my invention consists in forming the scraping-cylinder with concave surfaces between the scraping-surfaces, one edge of the scraping-surface falling back or being on a line of less diameter to the axis of the cylinder than the other scraping-edge, and also in arranging the scraping-surfaces spirally around the periphery of the cylinder, whereby a shearing scrape is made from the block of wood.

It consists in further details of construction hereinafter more fully set forth.

Referring to the drawings, A designates a block of wood to be operated upon, and B the scraping-cylinder. The block A and the cylinder B may be mounted in bearings or chucks, so as to have rotary motion imparted to them, and the devices I prefer to use for this purpose are those shown and described in my patent of January 18, 1881, No. 236,794, and, as stated in the patent above referred to, the block of wood may have a reciprocating, oscillating, or revolving motion imparted to it, so as to present new and fresh surfaces to the action of the scrapers, and by which means the surface of the block is kept uniform and even throughout its length and the danger of charring the fibers avoided.

B designates the scraping-cylinder, the scraping surfaces or edges of which are made in the periphery of a solid metal cylinder; or the cyl-

inder may be composed of short sections to form a scraping-cylinder of any desired length, and secured together in any convenient manner. The scraping surfaces or edges are formed in the periphery of said cylinder, spirally to its axial line, (but may be made parallel therewith without departing from the spirit of my invention,) by cutting, grinding, or casting with the concave surfaces formed in the cylinder between them.

C C are the intermediate projecting surfaces between the concave surfaces, and on which the scraping-edge is formed. One side or edge, *c*, of the surfaces C C is lower, or on a line of less diameter to the axis of the cylinder than the other or scraping-edge, *d*, as clearly shown in Fig. 3, and by which means I am enabled to impart to the wood a scraping action when the cylinder is revolved in the direction of the arrow, Figs. 2 and 3, and thus produce long fine fibers of very desirable properties, free from hard chips or solid portions, so frequently found in the fibers which are cut from the block.

It will be apparent to those skilled in this art that by severing the fibers from a block of wood in the manner and by the means herein described, a longer, finer, and better pulping and felting fiber will be produced than by grinding the same from the block of wood, either with emery or other stone wheels or rubbers, or with rollers having grinding-surfaces, as is now the usual practice.

D D are the concave or depressed portions between the scraping-surfaces, and are kept at a certain depth to insure the best working effect by grinding or planing.

I am aware that two rollers, each having a grinding-surface, have been used to reduce wood to pulp.

I am also aware that spiral scrapers have been used to scrape the fibers from a block of wood fed forward to said scrapers.

I am also aware that blocks of wood have been made to revolve, so as to impinge against stationary knives; but such I do not desire to claim.

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

1. In a machine for producing wood fiber for paper and other articles, the scraping-cylinder

herein described, provided with scraping-surfaces C, one side or edge, *c*, of such scraping-surface on a line of less diameter to the axis of the scraping-cylinder than the other or scraping-edge, *d*, as set forth.

2. In a machine for producing wood fiber for paper and other articles, the scraping-cylinder B, provided with the concave or depressed portions D and oblique scraping-surface C, as set forth.

3. The combination of a reciprocating, oscil-

lating, or revolving body of wood, and devices for holding and imparting the desired motion to the same, with the revolving scraping-cylinder, whereby fibers of uniform size are produced, without charring or injuring the same, by reason of undue friction, as set forth.

G. FRANK EVANS.

Witnesses:

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WILLIAM B. BUCKNAM.