

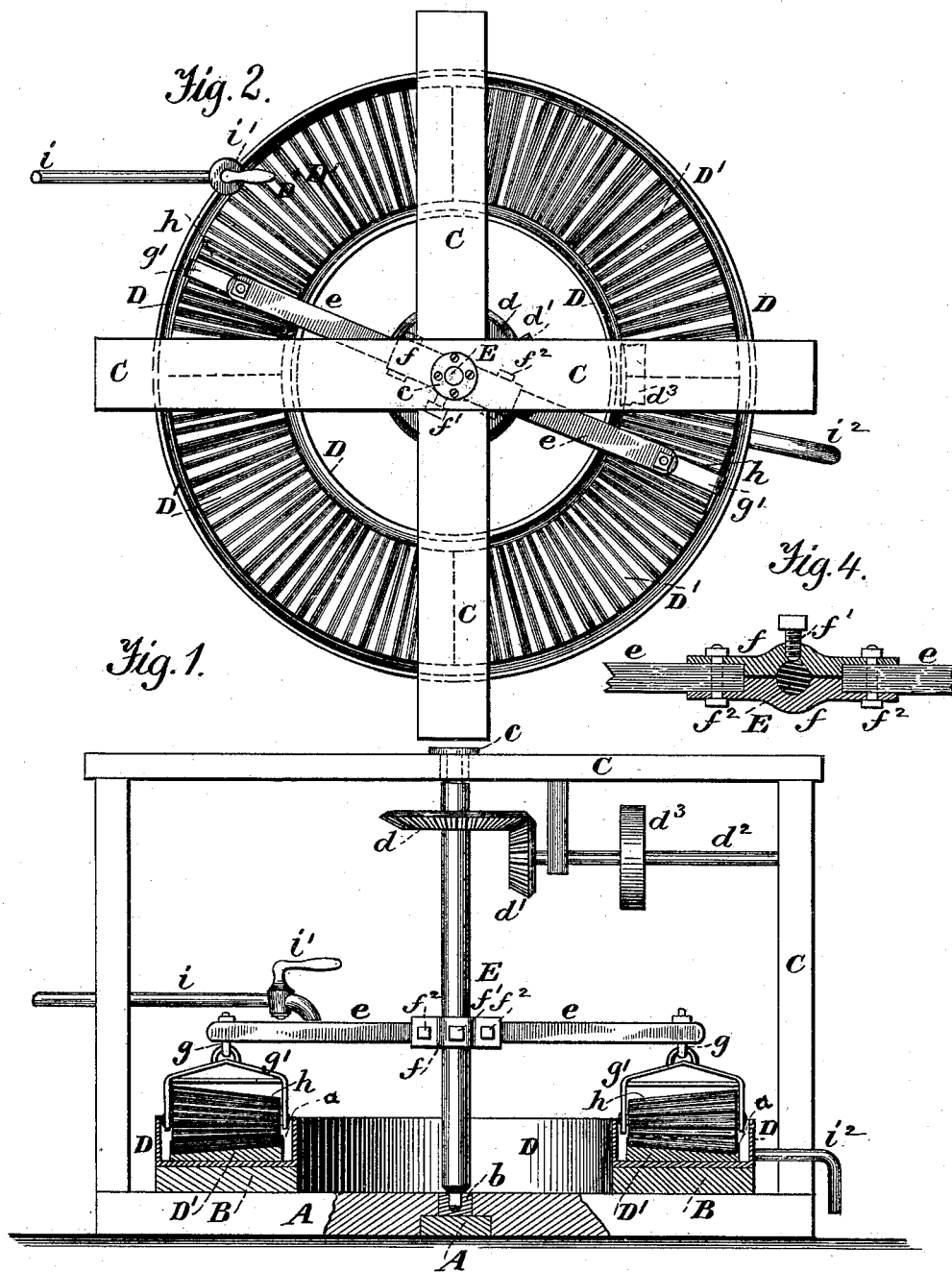
(No Model.)

J. D. STANLEY.

MILL FOR TREATING FIBER YIELDING MATERIALS.

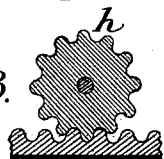
No. 408,142.

Patented July 30, 1889.



Witnesses:
A. Ruskert.
C. B. Thompson.

Fig. 3.



Inventor:
J. D. Stanley,
by *[Signature]*

UNITED STATES PATENT OFFICE.

JAMES D. STANLEY, OF EASTOVER, SOUTH CAROLINA.

MILL FOR TREATING FIBER-YIELDING MATERIALS.

SPECIFICATION forming part of Letters Patent No. 408,142, dated July 30, 1889.

Application filed January 5, 1889. Serial No. 295,509 (No model.)

To all whom it may concern:

Be it known that I, JAMES D. STANLEY, of Eastover, in the county of Richland and State of South Carolina, have invented certain new and useful Improvements in Mills for Treating Fiber-Yielding Materials, of which the following is a specification, reference being had to the accompanying drawings, and to the letters of reference marked thereon.

The object of my invention is to construct a mill specially applicable in the carrying out of a method of treating and preparing vegetable matter for use in the manufacture of fabrics for which an application for Letters Patent, Serial No. 295,508, is filed of even date herewith. The mill is, however, applicable to other uses.

In the accompanying drawings, Figure 1 is a vertical sectional view of a machine having my improvement. Fig. 2 is a plan. Figs. 3 and 4 are details hereinafter described.

Similar letters of reference indicate similar parts in the respective figures.

A is the base or foundation of the mill, consisting of timbers suitably arranged.

B B represent timber-segments resting together as a ring upon the foundation A.

C C show the upper frame-work of the mill.

D is an annular trough, of tin or sheet-iron, supported by the annular base formed of the segments B.

A series of cast-iron segments D' are secured together in any suitable manner and form an annulus which rests on the bottom of the trough D, to which it may be secured, if desired. The segments are not as wide as the interior of the trough, and a space *a* is thus formed on each side between them and the sides of the trough, into which the dross from the matter to be treated may be carried by the water which constantly circulates through the trough, as will be hereinafter explained, and whence it may escape with the water through a discharge-pipe.

The iron segments D' are corrugated or cogged, as shown in Fig. 3, the cogs being parts of true circles, as seen in Fig. 3.

A shaft E rests at its lower end in a step *b*, supported by the timbers A, and at its upper end in a bearing *c*, held by the upper timber

of the frame-work C. The shaft E is revolved by means of gears *d* and *d'*, the latter being mounted upon a shaft *d''* and having a pulley *d'''*. The shaft E is provided with a sleeve or jaw *f*, (shown particularly in Fig. 4,) secured to the shaft by means of the set-screw *f'*. To each end of the sleeve or jaw *f* is secured, by bolts *f''*, one end of an arm *e*. (Shown in place in Figs. 1 and 2.) At each end of the arm *e* is a hanging hook *g*, to which is suspended a bail *g'*, serving as the bearings of the roller *h*. The two rollers *h* are corrugated or cogged, to accurately fit the surfaces of the segments D', and are necessarily tapered somewhat, as shown, the track also being inclined. A water-pipe *i*, provided with a cock *i'*, is situated so as to admit water to the upper part of the trough D, while a pipe *i''* is placed at the lower part of the trough to carry off water and dross, the object being to allow a stream of water to run constantly through the trough.

An important advantage arising from the use of a constantly-flowing stream of water is that it keeps the matter from packing together or between the operating-surfaces, and also gently turns or rolls the fibers, by which changes of position the entire body is acted upon.

In operation the matter to be treated (as, for instance, the needles of the yellow-pine tree) is thrown into the trough D, and, a low level of water being constantly maintained in the trough, the rollers *h* are put in action. The matter is thus crushed and rubbed between the corrugated surfaces of the segments D' and rollers *h* without being broken, the circular formation of the co-operating surfaces preventing the breakage of the fiber. It will be seen that by making the corrugated surfaces of the rollers and segments, respectively, (or, in other words, the teeth,) the shape of parts of true circles, the teeth may be brought in absolute contact throughout all parts of their surfaces, no clearance being necessary, as with the ordinarily-shaped cogs, at the same time getting the deepest entrance of the parts within each other. The object is to get the greatest crushing and rubbing surface without danger of injury to the fiber. During this opera-

tion the water is constantly passing through the mill, removing the dross.

Having described my invention, I claim—

5 An annular trough and a series of corrugated segments forming an annulus resting on the bottom of said trough, said segments being of a width less than that of the interior of the trough, for the purpose specified, combined with a series of corrugated rollers
10 engaging the corrugated segments, a rotating shaft and arms projecting therefrom for mov-

ing the said rollers, a pipe for conveying water to the trough, and an outlet-pipe leading from the bottom of the trough to carry off water and dross, substantially as set forth. 15

In testimony whereof I have hereunto set my hand and seal this 6th day of December, 1888.

JAMES D. STANLEY. [L. s.]

Witnesses:

E. CRUSE,

C. B. THOMPSON.