

(No Model.) H. C. SMITH. 2 Sheets—Sheet 1.  
MACHINERY AND APPARATUS FOR SCUTCHING OR SEPARATING, WASHING,  
DRYING, AND BLEACHING THE FIBERS OF FIBER BEARING LEAVES  
AND PLANTS.

No. 282,788.

Patented Aug. 7, 1883.

Fig 2.

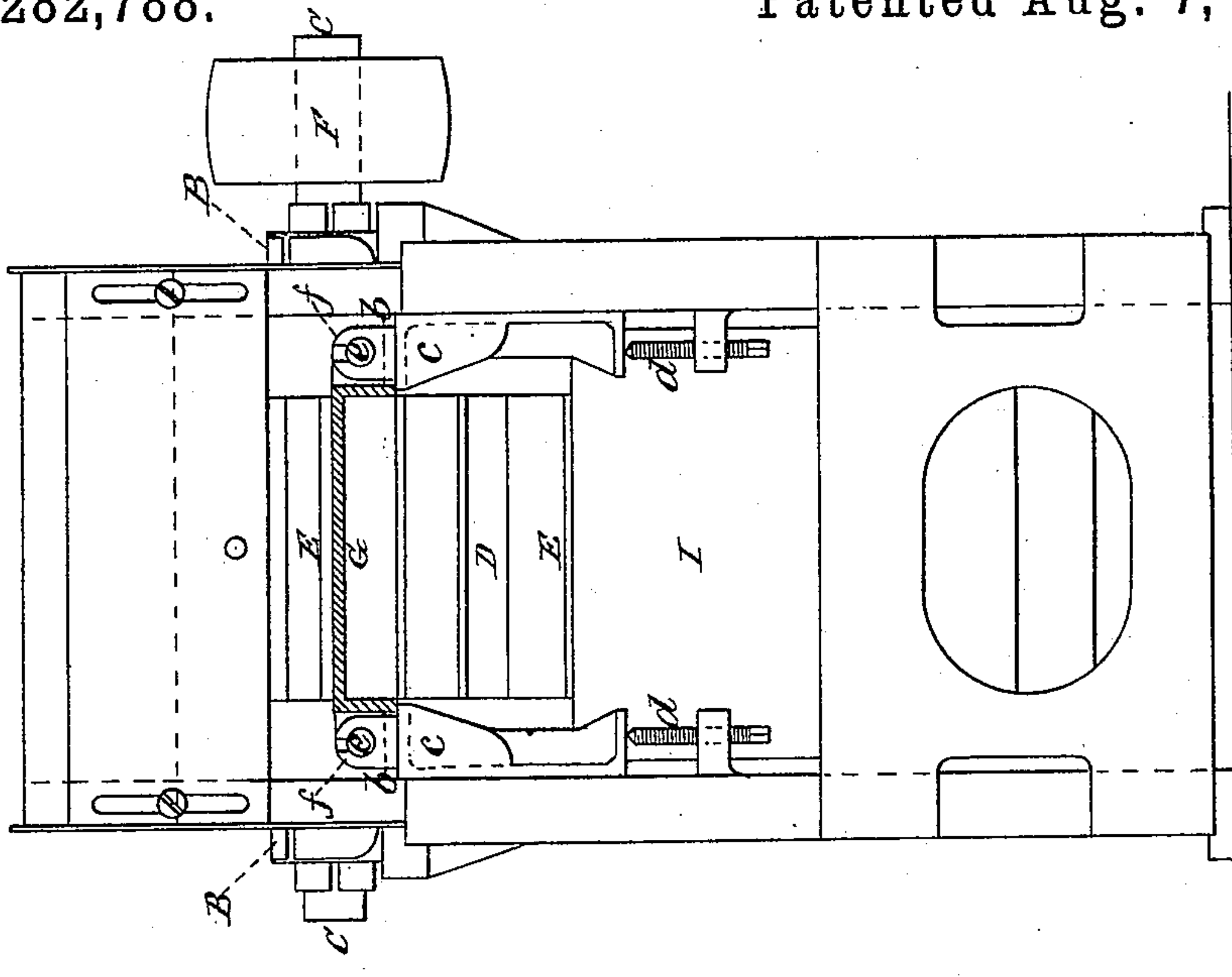
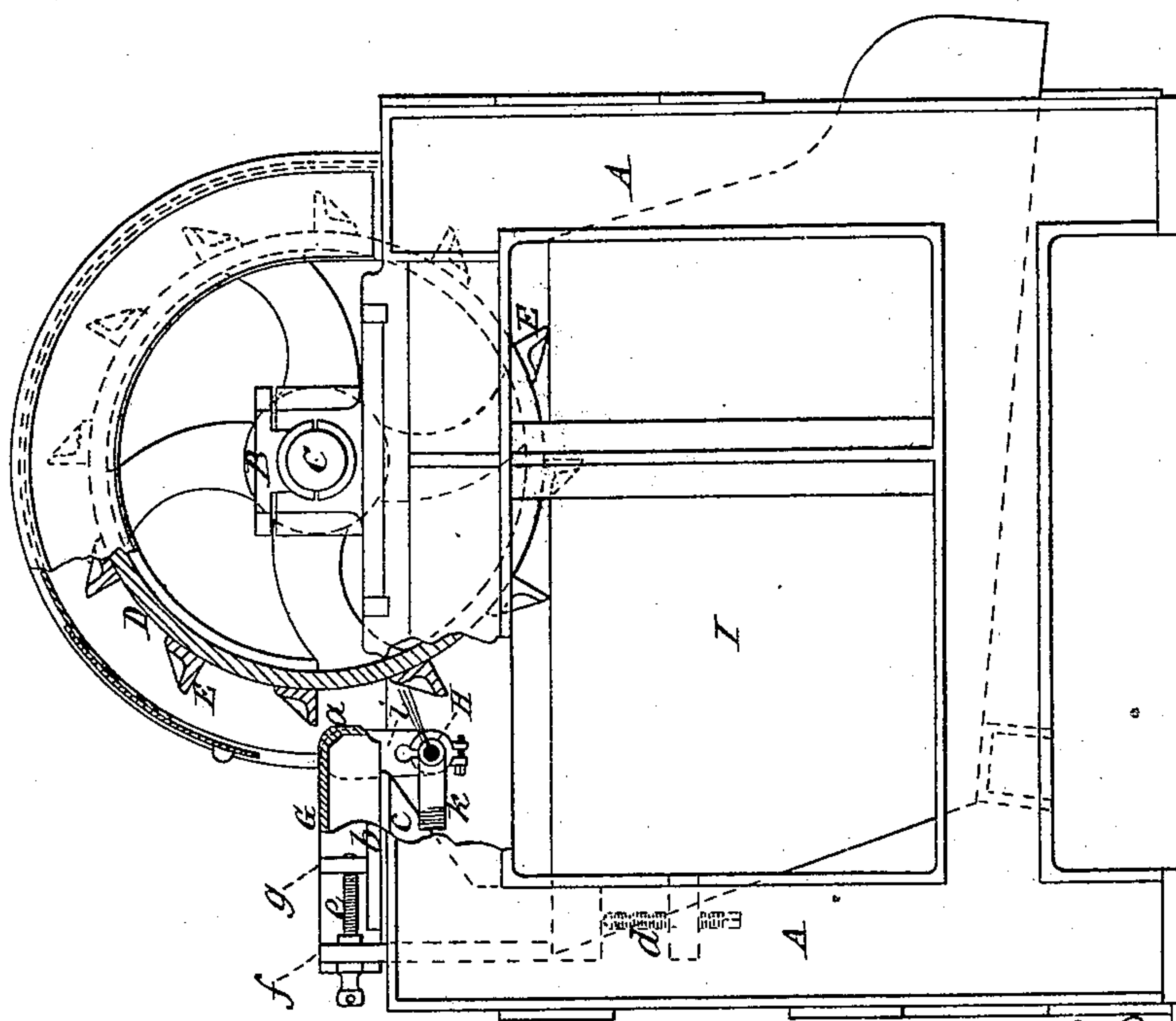


Fig 1.



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(No Model.)

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2 Sheets—Sheet 2.

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Fig 5.

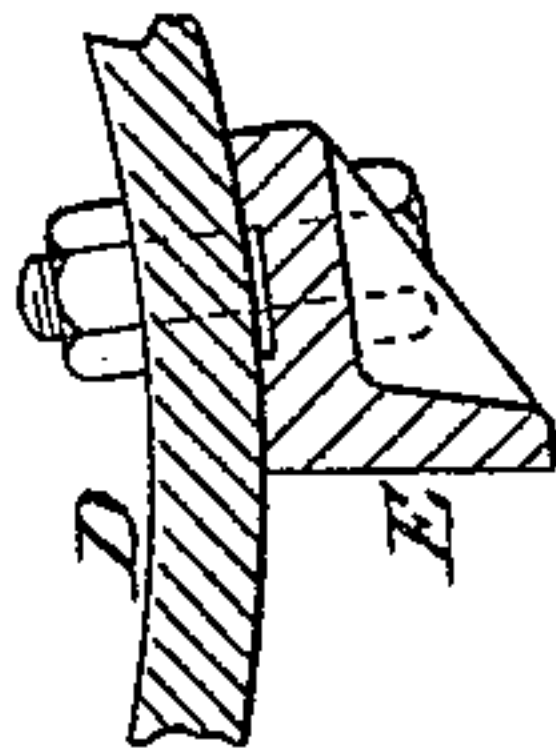


Fig 6.

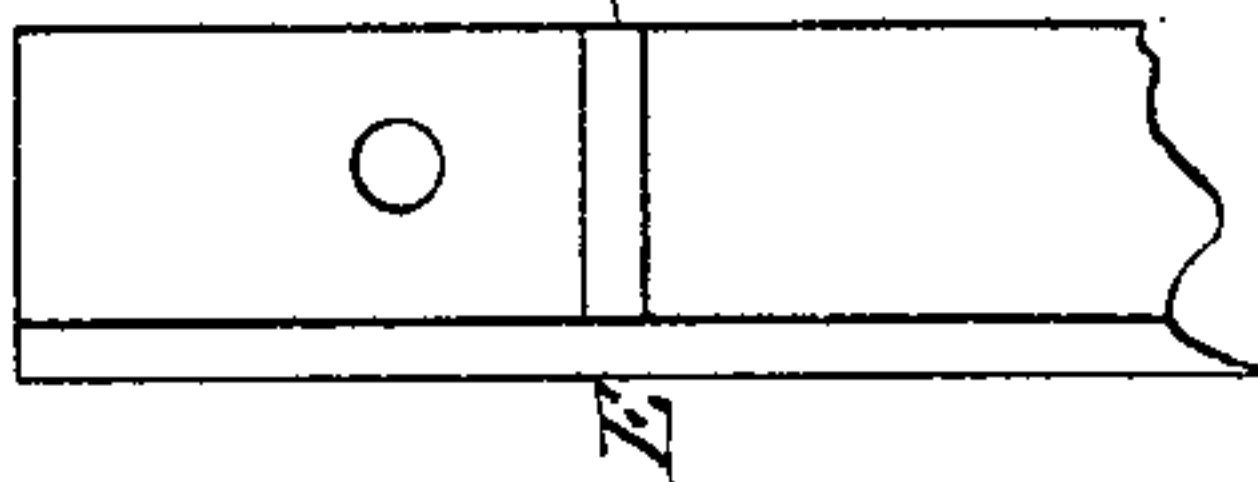


Fig 3.

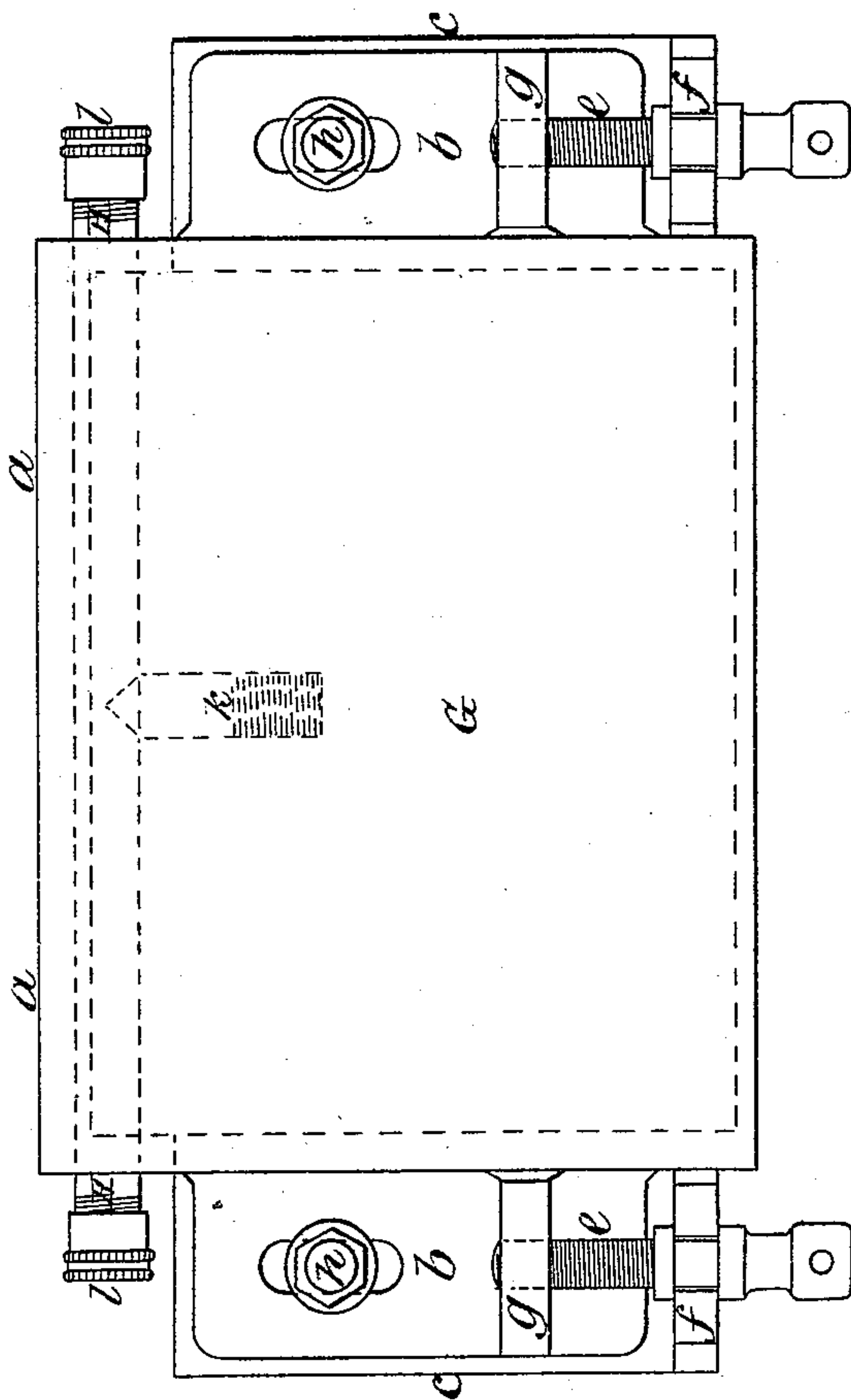
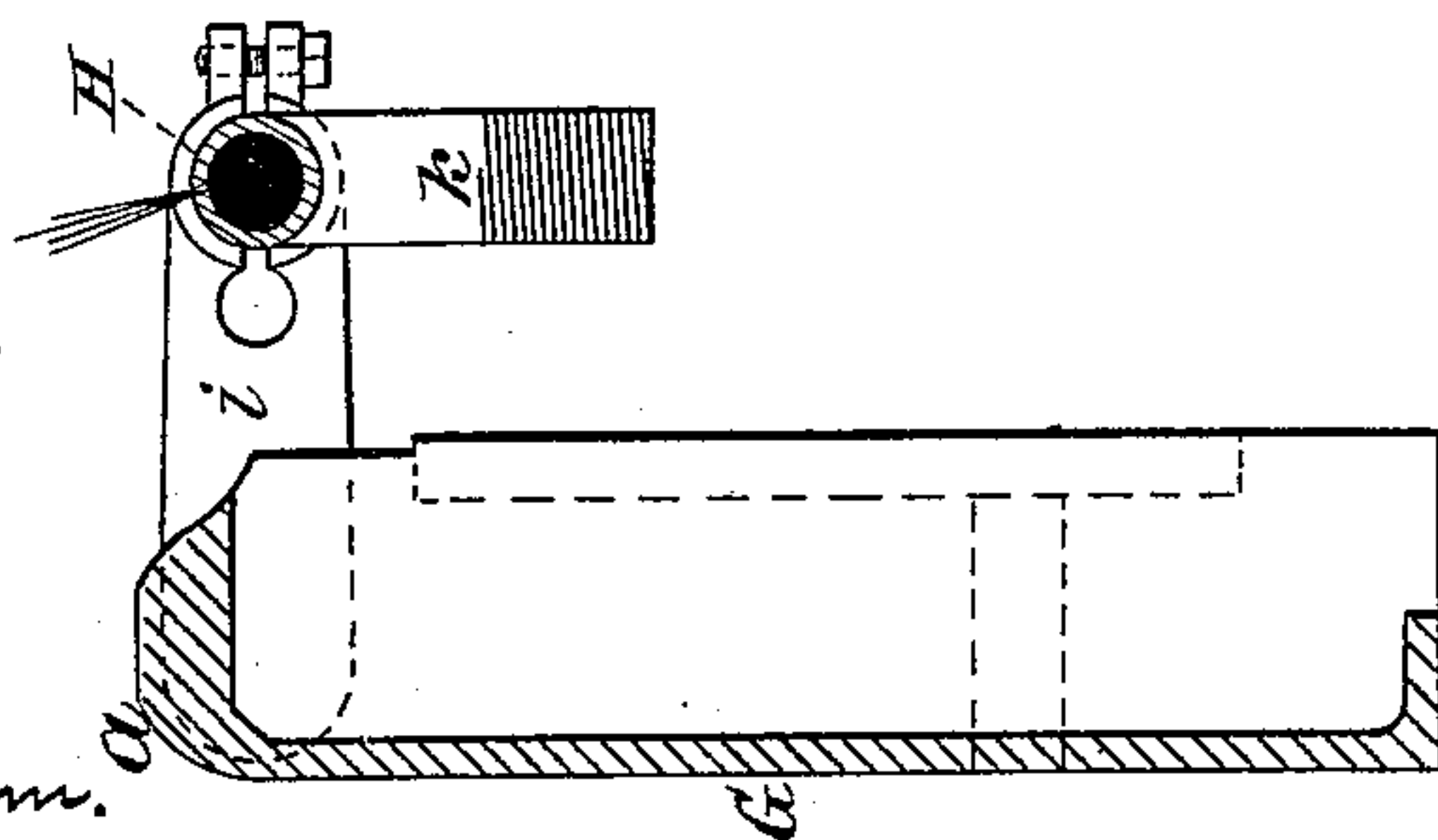


Fig 4.



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# UNITED STATES PATENT OFFICE.

HENRY C. SMITH, OF RICHMOND, COUNTY OF SURREY, ENGLAND.

MACHINERY AND APPARATUS FOR SCUTCHING OR SEPARATING, WASHING, DRYING, AND BLEACHING  
THE FIBERS OF FIBER-BEARING LEAVES AND PLANTS.

SPECIFICATION forming part of Letters Patent No. 282,788, dated August 7, 1883.

Application filed February 13, 1883. (No model.) Patented in England November 6, 1882, No. 5,297.

*To all whom it may concern:*

Be it known that I, HENRY CHARLES SMITH, a citizen of England, residing at Richmond, in the county of Surrey, have invented new and useful Improvements in Machinery or Apparatus for Scutching or Separating, Washing, Drying, and Bleaching the Fibers of Fiber-Bearing Leaves and Plants, of which the following is a specification.

10 This invention relates to improvements in machinery or apparatus for more effectually and expeditiously removing the glutinous or pulpy matter from the fibers contained in the leaves or stalks of the aloe, pine-apple, *Phor-*  
15 *mium tenax*, (or New Zealand flax,) and other fiber-bearing leaves and stalks, and at the same time washing and bleaching, or washing or bleaching and drying the said fibers, thereby preventing their discoloration by the action  
20 thereon of the acrid or acid matter of the said pulp.

The said improved machine or apparatus not only accomplishes the before-mentioned operations in a more complete and perfect  
25 manner and with greater economy of time and labor than machines in ordinary use; but it can be advantageously and efficiently applied to the scutching of those classes of aloes or other fiber-bearing plants which, owing to their  
30 acrid nature, cannot practically be treated in the scutching-machines hitherto employed.

In my improved machine I combine with scutchers or beaters and a feed table or plate (made adjustable or not, as preferred) one or  
35 more water-jet pipes supplied in any convenient manner with hot or cold water; or, if required, with any suitable or well-known bleaching liquor or solution, the said jet pipe or pipes being so placed with reference to the  
40 feed table or plate and the scutchers or beaters as to direct one or more powerful jets of water or bleaching-liquor, as the case may be, through the fibers at the same time that they are being scutched, a current of air generated by the  
45 motion of the beaters themselves, or by a separate fan or blower, being also at the same time directed through the upper part of the fibers for the purpose of rapidly drying the same as fast as they are drawn back over the feed-  
50 table. I am thus enabled to scutch or remove

the pulpy matter from the fibers of the leaves or stalks, and to wash and bleach, or wash or bleach, the separated fibers at one operation, in lieu of first scutching the fibers and then sub-  
55 jecting them to separate operations of washing, wringing, bleaching, and drying.

In working my machine I drive the scutcher at a high speed, or I employ a fan or blower in combination therewith, so as at the same time to generate a current of air sufficiently  
60 powerful to drive or force the fibers into or through the before-mentioned jet or jets of hot or cold water or bleaching-liquor, which are caused to play upon the fiber and scutchers or beaters, thereby thoroughly removing or  
65 washing away all the glutinous matter from the fibers as fast as they are passed through the machine, while at the same time the scutchers or beaters are also kept perfectly free from the destructive effects of the acrid  
70 matter upon the metal. The before-mentioned jet or jets of water or bleaching-liquor may be so applied as not only to wash the fiber, but in some cases to act also as a cushion or yielding backing to the fiber for maintaining it in  
75 longer contact with the scutcher.

The apparatus or machine may be constructed in various ways; but it is essential that special jet-pipes and cocks be employed in  
80 combination with the scutchers or beaters, so as to supply the requisite jet or jets of water for acting on the fiber while it is being scutched.

I attain the before-mentioned several objects by the machinery or apparatus illustrated in the accompanying drawings, in which—  
85

Figure 1 is a side elevation and partial section of my improved machine. Fig. 2 is a corresponding front view of the same. Fig. 3 is a detail plan of the feed table or plate, with its jet-pipe attached, drawn to a larger scale. Fig.  
90 4 is a corresponding transverse section of the same; and Figs. 5 and 6 are enlarged details of a portion of the scutching-drum and one of its beaters.

Similar letters refer to similar parts throughout the several views.

A A are the cast-iron or other standards of the machine.

B B are plummer-blocks carrying the journals of the shaft C, on which is mounted the  
100



scutching-drum D, provided with suitable beaters, E E, round its circumference.

F is the driving-pulley by which, or by suitable gearing, a rapid rotary motion is imparted to the drum.

G is the feed table or plate, across which the leaves to be scutched are fed toward the beaters by the attendant, and drawn back as they are scutched. This feed-table may either be fixed or adjustable; but I prefer to make it adjustable both in a vertical and in a horizontal direction, as shown in my drawings, so as to be enabled to regulate or adjust the position of its front curved edge, *a*, with reference to the beaters. For this purpose the table, which may be of cast-iron, is formed with flanges or lugs *b b* at each end, resting upon vertically-sliding adjustable supports *c c*, inside the standards, acted upon by elevating-screws *d d*. The horizontal adjustment toward or from the beaters may be effected by the adjusting-screws *e e*, carried in lugs *f* on the vertical sliding supports *c*; and working through a lug or web, *g*, at each end of the table *h*, is a screw passing through a slot in each lug *b*, and provided with a tightening-nut for fixing the table in its adjusted position. At any convenient distance below the front edge of the table or feed-plate I mount, in suitable holders, *i*, attached to the table, or otherwise fitted, one or more water-jet pipes, H. (Shown more clearly in Figs. 3 and 4.) This pipe is perforated or formed with a fine slit along its side next to the beaters, and may be supplied with water or with bleaching-liquor under pressure in any convenient manner through the branch *k*, the ends of the perforated pipe being closed by removable screwed caps *l l* for the convenience of cleaning out the pipe. The holders *i* of the said jet-pipe are by preference split, as shown in Fig. 4, so that while gripping the jet-pipe the latter may be free to be turned or adjusted to the best position for the effective action of the liquid jet or jets on the fibers.

In using this machine the attendant gradually brings the thick end of the leaf up to

the beaters by moving it forward over the table as fast as the pulpy matter is removed by the beaters and the fibers become exposed. Simultaneously with this operation any gummy or pulpy acrid matters which may still be adhering to the fibers, and which will, if allowed to remain, inevitably discolor and injure the fibers, is effectually washed away by the action of the water-jets on the fibers, the said fibers being rapidly dried by the passage through them, above the water-jets, of a current of air generated by the revolving beaters themselves, or by a special fan or blower worked by the machine. These jets of washing or bleaching liquor may be directed through the fibers either from the outer side inward toward the drum, or vice versa; but I prefer the former arrangement, as the force of the jet or jets then serves as a yielding backing for holding the hanging or free ends of the fibers gently up to the beaters, and thus keeping them longer under their action.

I is a tank or cistern for receiving the refuse matter removed by the beaters, along with the surplus water or liquor used in washing or bleaching the said fibers.

What I claim as my invention, and desire to secure by Letters Patent, is—

1. The combination of the stationary table G, a revolving drum arranged opposite said table and carrying beaters E, and a pipe, H, receiving water under pressure, with perforations arranged to expel forcible jets of water against the fibers hanging over the table, and to thereby carry them toward the drum, substantially as described.

2. The combination of the drum carrying beaters E, stationary table C, and perforated pipe arranged below the table to throw jets toward the beaters, substantially as set forth.

In witness whereof I have signed my name in the presence of two subscribing witnesses.

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