(No Model.)

J. EVERDING.

MACHINE FOR BREAKING OR CUTTING UP SHEETS OF CELLULOID AND OTHER COMPOUNDS OF PYROXYLINE.

No. 286,535. Patented Oct. 9, 1883.

Fig: 1.

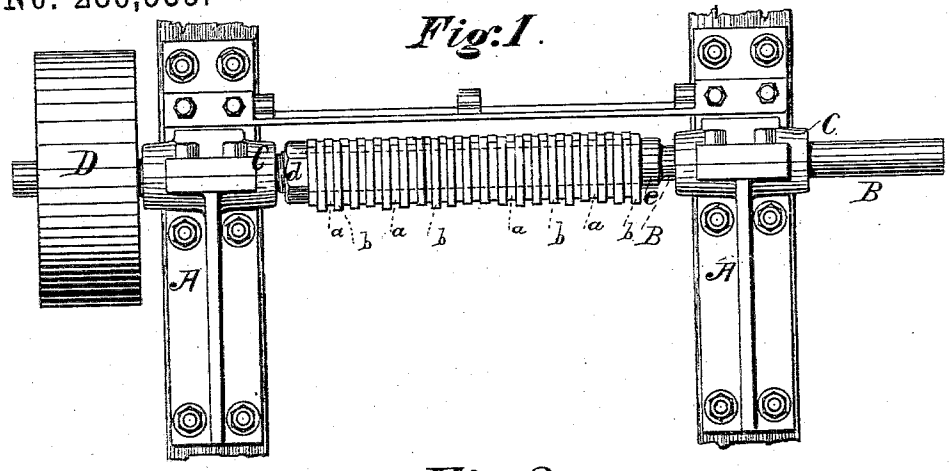


Fig: 2

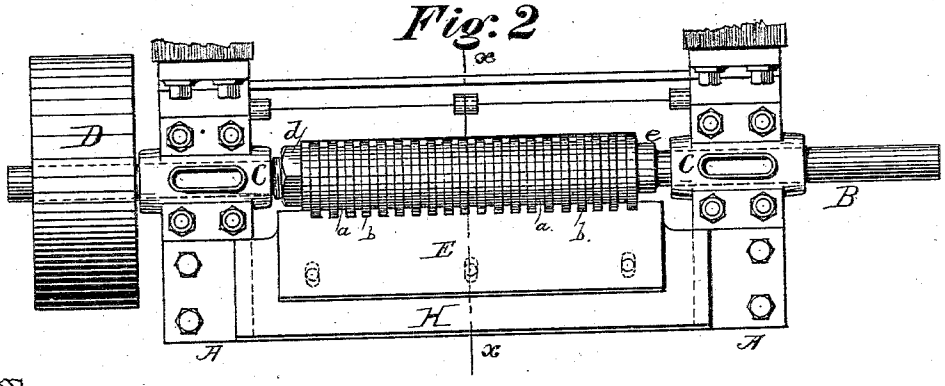


Fig: 3

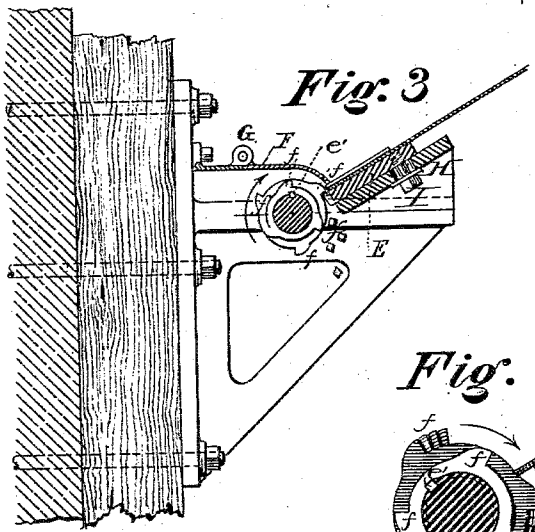


Fig: 4



Fig: 5

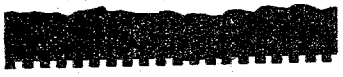


Fig: 7

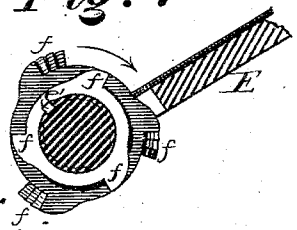
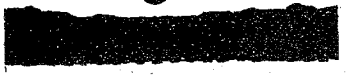


Fig: 6



Witnesses:
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UNITED STATES PATENT OFFICE.

JOHN EVERDING, OF NEWARK, NEW JERSEY, ASSIGNOR TO THE CELLULOID MANUFACTURING COMPANY, OF NEW YORK, N. Y.

MACHINE FOR BREAKING OR CUTTING UP SHEETS OF CELLULOID AND OTHER COMPOUNDS OF PYROXYLINE.

SPECIFICATION forming part of Letters Patent No. 286,535, dated October 9, 1883.

Application filed June 12, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN EVERDING, a citizen of the United States, and a resident of Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Machines for Breaking or Cutting Up Sheets of Celluloid and Other Compounds of Pyroxyline, of which the following is a specification.

The invention relates to an improvement in machines for breaking or cutting up sheets or cakes of celluloid and other compounds of pyroxyline preparatory to their transformation into a solid homogeneous mass.

The object of the invention is to provide a simple and durable machine which will rapidly reduce the dried cakes or sheets of the material into pieces of substaatially uniform size and configuration, whereby the material may be readily acted upon by the solvents employed in transforming it into a mass.

The nature of the invention and the details of construction will appear from the description hereinafter presented, reference being had to the accompanying drawings, in which—

Figure 1 is a front view of the machine with the apron and cover removed. Fig. 2 is a plan view of same with the cover removed and the apron in position. Fig. 3 is a central vertical section on the line *x x* of Fig. 2. Fig. 4 represents part of a sheet of pyroxyline before it is brought into contact with the cutting-disks of the machine. Fig. 5 illustrates the edge of the sheet of material after it has been acted upon by the larger series of disks or cutters. Fig. 6 is a view showing the condition of the edge of the sheet after it has been subjected to the action of the smaller disks or cutters; and Fig. 7 is an enlarged section of the main shaft, illustrating the relative position of the disks to each other and the feeding-apron.

A denotes the two ends of the machine, which will be of any construction suitable for firmly supporting the ends of the main shaft B, which is journaled in the bearings C, and is provided on one of its ends with the band-wheel D, or other suitable means to which power for revolving the shaft may be applied.

Upon the shaft B, between the supports A, are arranged, alternatingly, the larger and smaller disks *a b*, the said disks being side by side, and at one end being held in position by a collar, *c*, and at the other by a nut, *d*. The disks *a b* are prevented from turning on the shaft B by a feather, *e*, indicated in Fig. 3, and they have upon their periphery the series of teeth *f*, those on the smaller disk, *a*, being of about sufficient size to extend to the periphery of the larger disks, *b*, and the teeth on the disk *b* being extended beyond the circle described by the teeth on the smaller disks, as indicated in Figs. 3 and 7. In arranging the disks *a b* upon the shaft B their relation to each other is such that the teeth *f* are arranged on varying horizontal lines, in order that all of the motion of the shaft B may be utilized in breaking up the material, and causing what is tantamount to a continuous action on the sheet of material being treated.

In front of the shaft B, and inclining downward at an angle toward the center thereof, is provided, for convenience in feeding the sheets or cakes of material to the cutters, the apron E, the edge of which, adjacent to the cutters *a b*, will be provided with notches corresponding with the outline described by the teeth *f*, whereby during the rotation of the shaft B the said teeth may pass in close relation to the apron E without danger of striking it or jarring the machine.

Above the shaft B is furnished the cover F, which is hinged at G, and the purpose of which is to protect the attendant during the operation of the cutting-disks *a b*, and also to protect the journals and other parts of the machine from the dust which will arise while cutting or breaking the material.

The apron E will be mounted upon a frame, H, and be controlled as to its relation to the cutting-disks by the screws I.

The sheets or cakes of dried pyroxyline material to be reduced is placed upon the apron E in substantially the position illustrated in Fig. 7, and its edge being moved in contact with the disks *a b*, it is reduced to pieces of substantially uniform size and condition by the action of the teeth *f* on the cutters *a b*,

substantially as pointed out hereinbefore, and indicated in Figs. 4, 5, and 6 of the drawings.

While I have described the employment of the machine sought to be protected hereby in connection with the treatment of pyroxyline, it will appear manifest that it may be employed with equally satisfactory results for cutting or breaking sheets or cakes of any compound of vegetable fiber, dried paper-pulp, &c.

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

1. A machine for cutting or breaking up sheets of pyroxyline material, which consists of a series of disks mounted upon a shaft, and provided with teeth of varying sizes adapted to reduce the material, substantially as set forth.

2. In a machine for cutting or breaking up cakes or sheets of pyroxyline material, a series of larger and smaller cutting-disks alternatingly secured upon a shaft, and provided with teeth adapted to reduce the material, substantially as set forth.

3. In a machine for cutting or breaking up cakes or pieces of pyroxyline material, a series of larger and smaller cutting-disks mounted alternatingly upon a shaft, the teeth of the disks being arranged in varying horizontal lines, substantially as and for the purpose described.

4. A machine for cutting or breaking up sheets or cakes of pyroxyline material, consisting of the cutting-disks *a b*, having teeth *f*, the apron E, and a cover, F, substantially as set forth.

Signed at New York, in the county of New York and State of New York, this 6th day of June, A. D. 1883.

JOHN EVERDING.

Witnesses:
CHAS. C. GILL,
HERMAN GUSTOW.