(No Model.)

M. SWENSON.

CANE CUTTER OR DISINTEGRATOR.

No. 422,657. Patented Mar. 4, 1890.

FIG. 1.

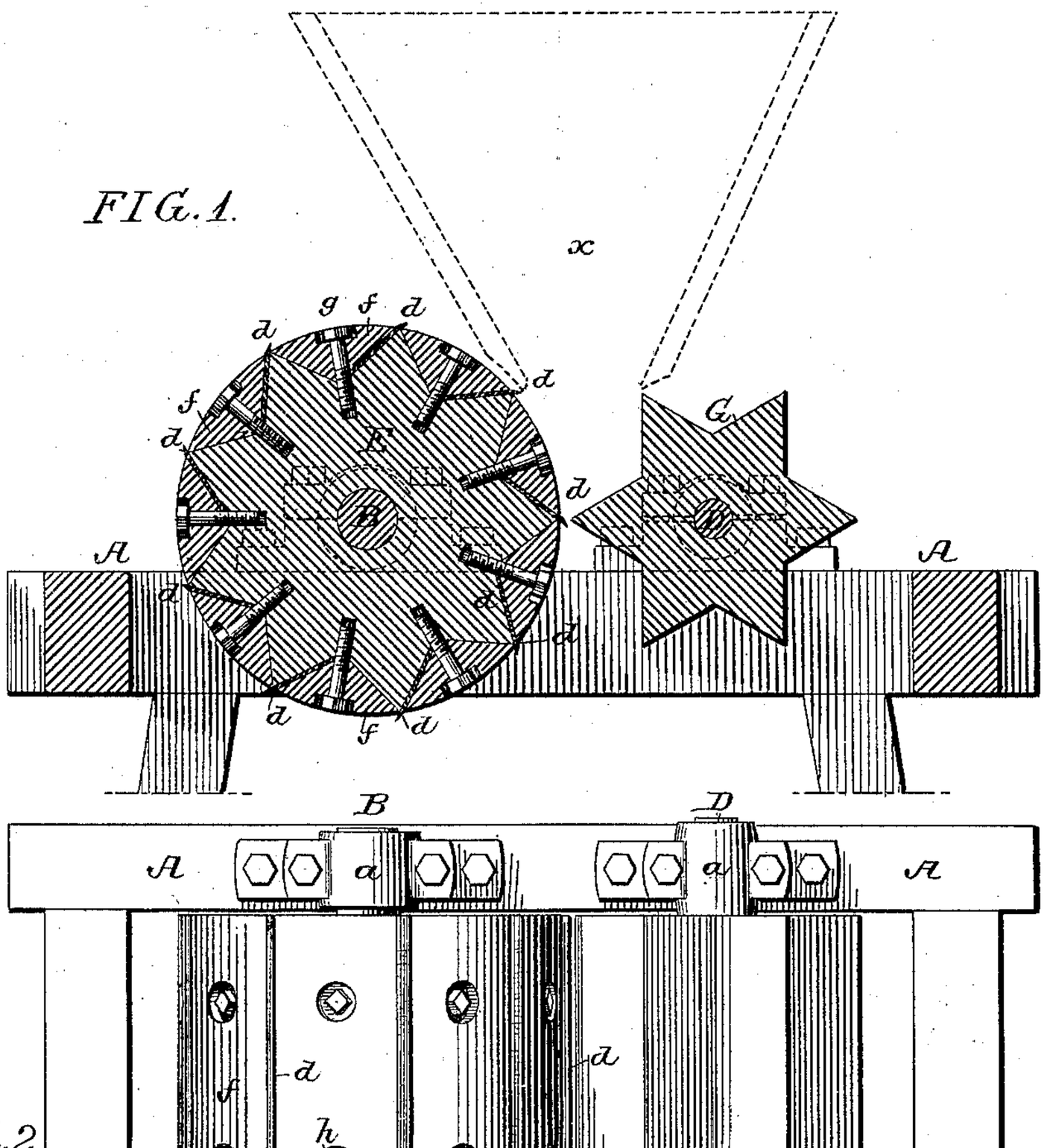

FIG. 2.

Witnesses:
Hamilton O. Turner
Wm. D. Bowers.

Inventor:
Magnus Swenson
by his Attorneys
Howson & Howson

UNITED STATES PATENT OFFICE.

MAGNUS SWENSON, OF FORT SCOTT, KANSAS.

CANE CUTTER OR DISINTEGRATOR.

SPECIFICATION forming part of Letters Patent No. 422,657, dated March 4, 1890.

Application filed December 26, 1888. Serial No. 294,676. (No model.)

To all whom it may concern:

Be it known that I, MAGNUS SWENSON, a citizen of the United States, and a resident of Fort Scott, Bourbon county, Kansas, have invented certain Improvements in Cane Cutters or Disintegrators, of which the following is a specification.

My invention consists of certain improvements in the construction of shredders or disintegrators, such as are used for cutting up sugar and sorghum cane prior to the treatment of the same for the extraction of the juice by the diffusion process, the object of my invention being to render the machine strong, compact, and simple in construction, to provide for the ready renewal or replacing of any one of the cutting or acting faces which becomes dull or broken, and to prevent injury to said acting-faces in the event of hard foreign matters being introduced between them.

In the accompanying drawings, Figure 1 is a longitudinal section of a cane shredder or disintegrator constructed in accordance with my invention, and Fig. 2 is a plan view of the same.

A A are the opposite side frames of the machine, which are braced and connected by suitable cross-bars A′ and carry bearings *a* for two shafts B and D, the shaft B being free to turn in its bearings, and being provided at one end with a pulley *b* for the reception of a driving-belt from any available countershaft, the shaft D, however, being so confined in its bearings that it is not free to turn therein, except under the circumstances explained hereinafter.

The shaft B carries a cylinder F, in the face of which are a series of angular recesses extending from end to end of the cylinder, the forward face of each of these recesses serving as a support for the cutting blade or knife *d*, the cutting-edge of which projects slightly beyond the surface of the cylinder, the blades being secured in position by angular bars *f*, which fill the recesses in the face of the cylinder and are secured to said cylinder by means of bolts *g*, the heads of which are let into recesses *h* in the outer faces of the bars, as shown in Figs. 1 and 2. The cylinder thus presents practically a flush face, excepting where the longitudinal cutting-blades project therefrom.

The shaft D carries a star-shaped drum G, the apex of each of the angular projections of said drum being comparatively sharp, so as to form a cutter for action in conjunction with those carried by the cylinder F.

The operation of the machine is as follows: The cases or pieces of cane are fed into a hopper *x*, located above the cylinder and drum, as shown by dotted lines in Fig. 1, and pass therefrom down between said cylinder and drum, being there subjected to the action of the rapidly-moving blades or cutters of the cylinder, and being torn, shredded, or disintegrated by the combined action of said blades and the cutter formed by the apex of that projection of the star-shaped drum G which is in proximity to the cylinder, the friction upon the shaft of the drum G being sufficient in all cases to prevent any movement of said drum under the normal strain to which its acting projection is subjected in the operation of the machine. If, however, hard foreign matters which cannot be torn or shredded by the action of the cutters are fed into the space between the cylinder and the drum, the frictional retaining hold of the shaft of said drum will be overcome, and the drum will be permitted to turn sufficiently to permit such foreign matters to pass between the same and the cylinder, thus preventing breakage of the parts, which might otherwise occur. When either of the cutting-surfaces of the drum, moreover, becomes dull or is broken or otherwise rendered defective, said drum can be readily turned part way around, so as to bring a new projection and a new cutting-surface into operative position without causing any material stoppage in the operation of the machine. A broken or defective cutting-blade *d* can also be very readily removed and a new one substituted therefor upon first removing the bar *f*, whereby the cutting-blade is held in its place on the cylinder.

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

1. The combination, in a cane shredder or disintegrator, of the rotating cylinder having

projecting cutting knives or blades with a drum normally fixed in position and having angular projections, the apex of each of which forms a cutter for acting in conjunction with those of the cylinder, substantially as specified.

2. The combination of the rotating cylinder and its projecting knives or cutters, the drum having projections operating in conjunction with said knives or cutters, and bearings serving as frictional retainers for the shaft of said drum, all substantially as specified.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

MAGNUS SWENSON.

Witnesses:
J. H. BARRY,
J. C. HART.