

No. 676,680.

Patented June 18, 1901.

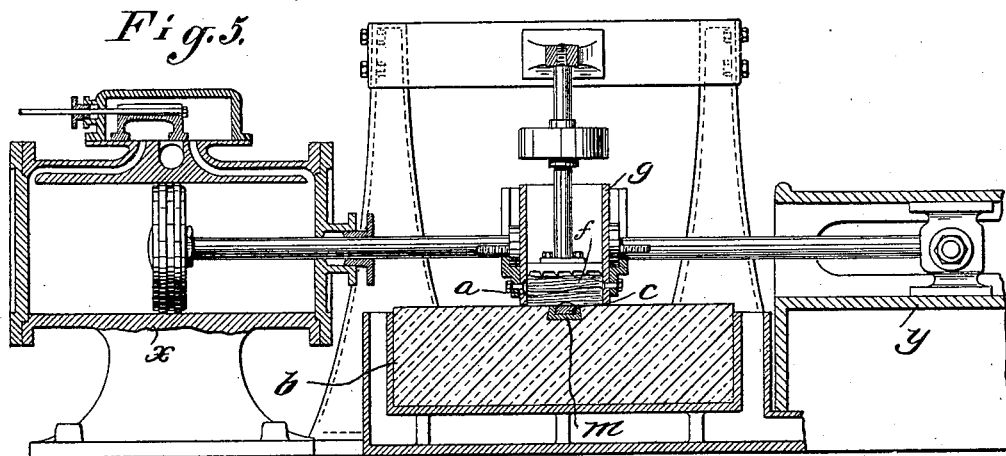
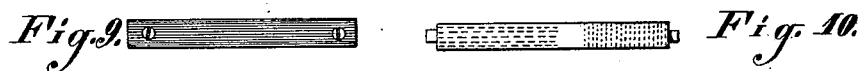
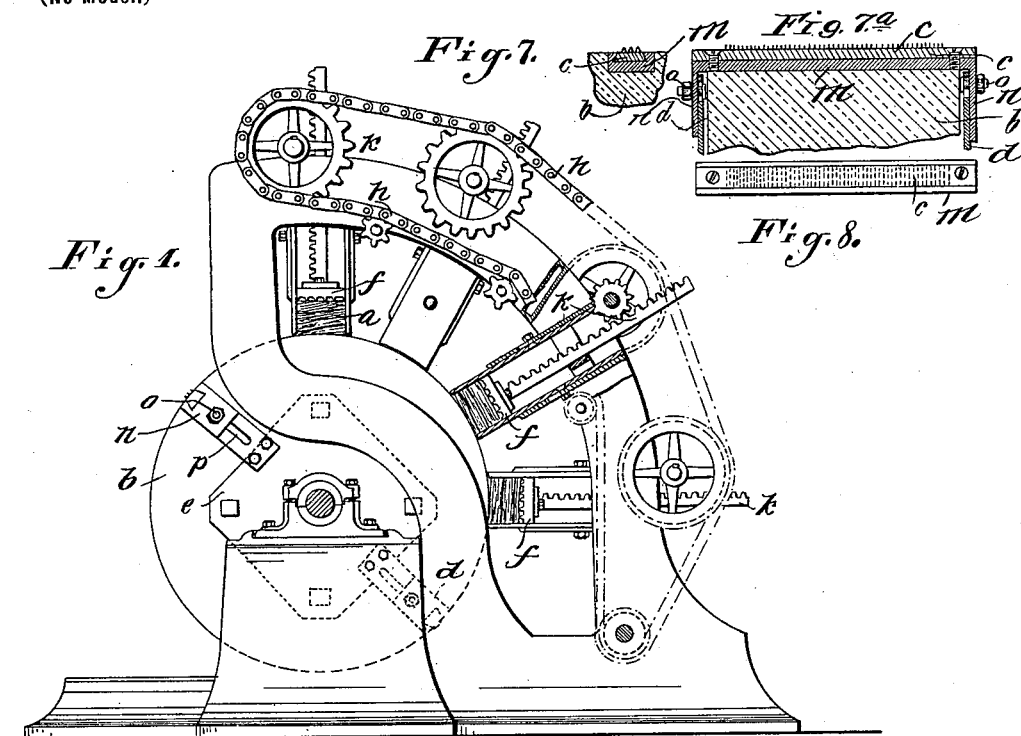
J. O. KLIMSCH.

APPARATUS FOR THE MANUFACTURE OF LONG STAPLED WOOD PULP.

(Application filed Dec. 11, 1899.)

2 Sheets—Sheet 1.

(No Model.)



Witnesses:

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2 Sheets—Sheet 2.

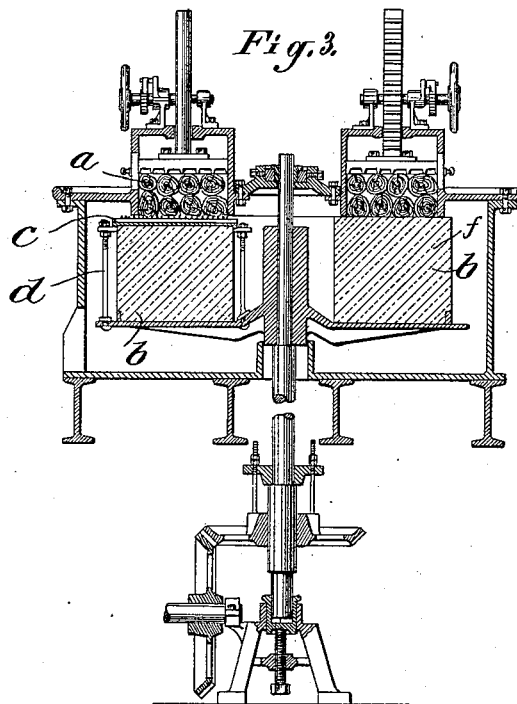
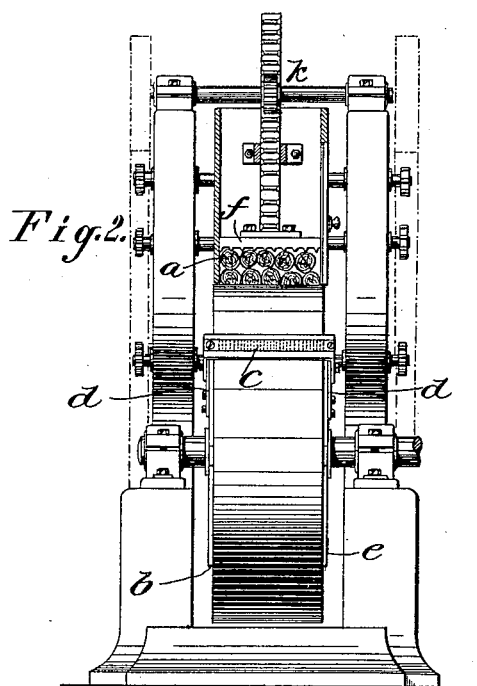


Fig. 6.

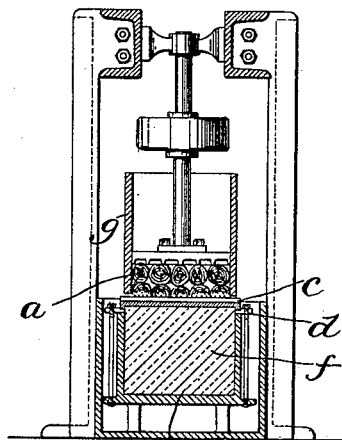
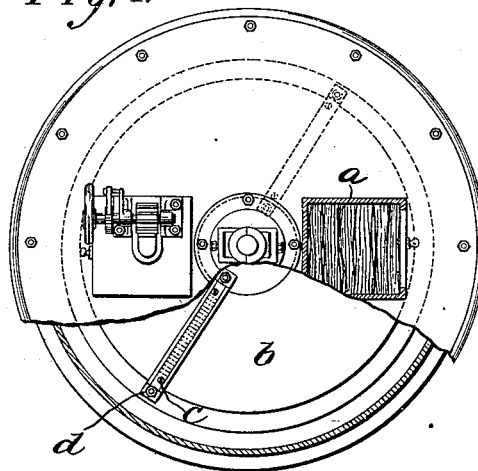


Fig. 4.



Witnesses: b

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UNITED STATES PATENT OFFICE.

JOSEF OSKAR KLIMSCH, OF VIENNA, AUSTRIA-HUNGARY.

APPARATUS FOR THE MANUFACTURE OF LONG-STAPLED WOOD-PULP.

SPECIFICATION forming part of Letters Patent No. 676,680, dated June 18, 1901.

Original application filed August 29, 1899, Serial No. 728,906. Divided and this application filed December 11, 1899. Serial No. 740,002. (No model.)

To all whom it may concern:

Be it known that I, JOSEF OSKAR KLIMSCH, a subject of the Emperor of Austria-Hungary, residing at Vienna, in the Empire of Austria-Hungary, have invented certain new and useful Improvements in Apparatus for the Manufacture of Long-Stapled Wood-Pulp, of which the following is a specification, being a divisional part of the United States application bearing the Serial No. 728,906, filed August 29, 1899.

This invention relates to a machine for disintegrating and grinding wood in the manufacture of long-stapled wood-pulp suitable for the production of half-stuff cellulose and for other purposes; and the invention consists in a grinding and disintegrating apparatus comprising a grinder provided at intervals with steel cutters or disintegrating-knives to increase the effectiveness of the grinder and to produce long-stapled wood-pulp, the wood being disintegrated by said cutters in the direction of the fibers and simultaneously ground on a grinding-surface.

In the accompanying drawings several different constructions of disintegrators are shown, in which steel cutters are provided on the grinding-surfaces.

Figure 1 is an elevation of a disintegrator with four feeding-presses *f*, in which the wood is advanced to the grinding-surface with the assistance of rack-and-pinion mechanism *k*, operated by an endless chain *h*. The wood *a* to be ground is fed into this machine with the fibers in the direction of rotation of the grinder, which is provided with disintegrating-knives *c* at one, two, or three points on its active surface. These knives *c* may be attached in any suitable manner—as, for example, by means of bearings *m*, having ears *n*, that are adjustably connected with plates *d*, screwed to plates *e*, Fig. 1, such as are commonly used for mounting the grinder *b*. Fig. 2 is a side elevation of the same disintegrator. Fig. 3 is a section of a head or flat grinder. In this construction there are two disintegrating-knives *c*, the edges and points of which act on the wood in the direction of the fiber on the blocks *a*, being pressed downward. Fig. 4 is a plan of the same construction. Instead of arranging the wood in the

direction of the fibers, as in Figs. 3 and 4, it can be arranged transversely with regard to the direction of motion of the flat grinding-surface. In this case, however, the length of the disintegrating-tools must be provided with edges and corners or points. Cutters of this kind are shown in Figs. 9 and 10. Such cutters provided with edges in the direction of their length do not properly exercise a disintegrating effect, but only a squeezing action in the direction of the fibers. These squeeze-cutters or points may therefore be arranged to move and rotate as rollers, Fig. 10. Fig. 5 represents a special construction of a flat grinding-machine. In this arrangement the grinding-surface and the disintegrating-knife *c* are fixed, and the feed-press *g* is moved backward and forward by any suitable mechanism, such as the elements *x* *y*, thus producing the same effect as is produced by the inverse arrangement shown in Figs. 1 and 3. Fig. 6 is a section of a fixed grinder according to Fig. 5. Instead of the construction shown for feeding the wood in the various constructions of disintegrators the necessary pressure may be obtained by means of weights, hydraulic apparatus, friction, and so on. Figs. 7, 7^a, and 8 show a metal holder for the cutting-tools, which are either slid in or placed on and are secured by screws.

The operation takes place with water injection in the manner usual with the various disintegrators, and the only difference existing is that by using the disintegrating-knives the wood is disintegrated much quicker, producing a much better and larger fiber or pulp than has been possible with the common grinders without knives.

It is unnecessary to describe all the details of the various constructions of disintegrators, much less the general plant, as only the grinding-surfaces, with the disintegrating-knives, which may differ from each other, form the subject-matter of the invention, and therefore either all existing grinding apparatus may be provided with the new arrangement of cutters or other constructions of disintegrators may of course be designed on the principle of the double action, first, having regard to the disintegrating-tools, and, secondly, to the simul-

taneous grinding action of the grinding-surfaces as such.

It will be observed by reference to Figs. 5, 7, 7^a, and 8 that the knives or cutters *c* are 5 removably or exchangeably set in metal linings or bearings *m* and are firmly retained therein by a dovetail connection or engagement of the one part with the other, the said metal lining being let into the grinding-sur- 10 face. It is preferable to so construct and arrange the metal lining or bearing *m* that it may be moved upward for adjustment of the cutter when the same becomes worn. This may be accomplished in various ways—as, 15 for instance, by providing said lining *m* with ears *n*, Figs. 1 and 7^a, that are adjustably connected, by means of bolts *o*, with slots *p* in the clamping-plates *d*, which are screwed to the plates *e*, as before described. By loosening the bolts *o* any required adjustment can 20 be readily imparted to the cutters.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. An apparatus of the class specified comprising a grinding member having a grinding- 25

surface, a plurality of disintegrating knives or cutters, metal linings or bearings for said cutters let into the grinding-surface at intervals each of said linings having depending ears, and means connected with the ears and 30 with the grinding member respectively, certain of the connecting means being adjustable to thereby permit movement of the disintegrating knives or cutters relatively to the grinding-surface, substantially as described. 35

2. An apparatus for the manufacture of long-stapled wood-pulp, comprising the grinding-surface *b*, a number of disintegrating knives or cutters *c*, metal linings or bearings 40 *m* for said cutters let into the grinding-surface at intervals, each of said linings having its ends provided with ears *n*, the fixed clamping-plates *d* provided with slots *p* and the adjusting-bolts *o*; substantially as described.

In testimony whereof I have hereunto set 45 my hand in the presence of two witnesses.

JOSEF OSKAR KLIMSCH.

Witnesses:

ALVESTO S. HOGUE,
AUGUST FUGGER.