

No. 675,484.

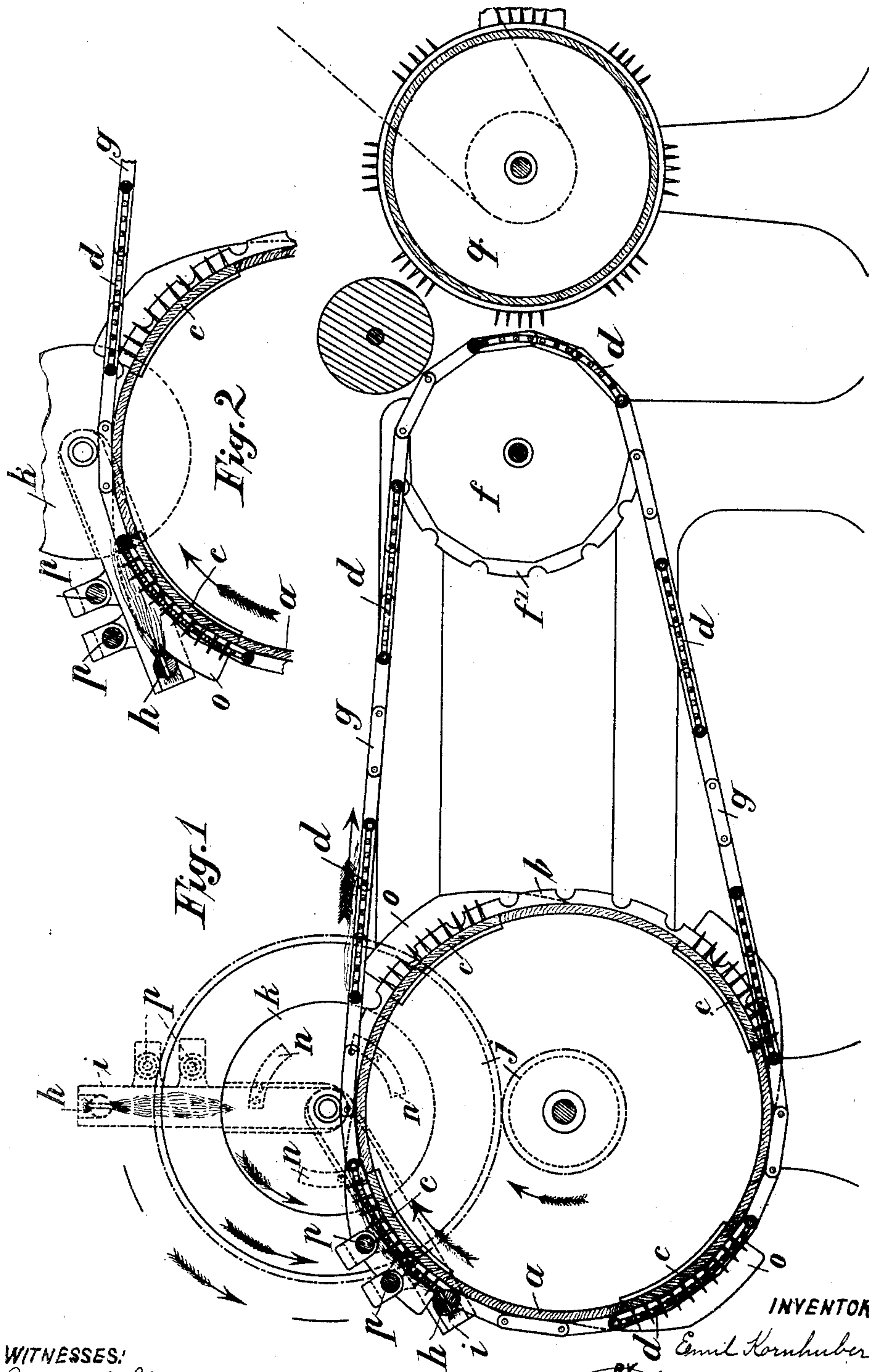
Patented June 4, 1901.

E. KORNHUBER.
HACKLING MACHINE.

(Application filed Mar. 31, 1900.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES:
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INVENTOR
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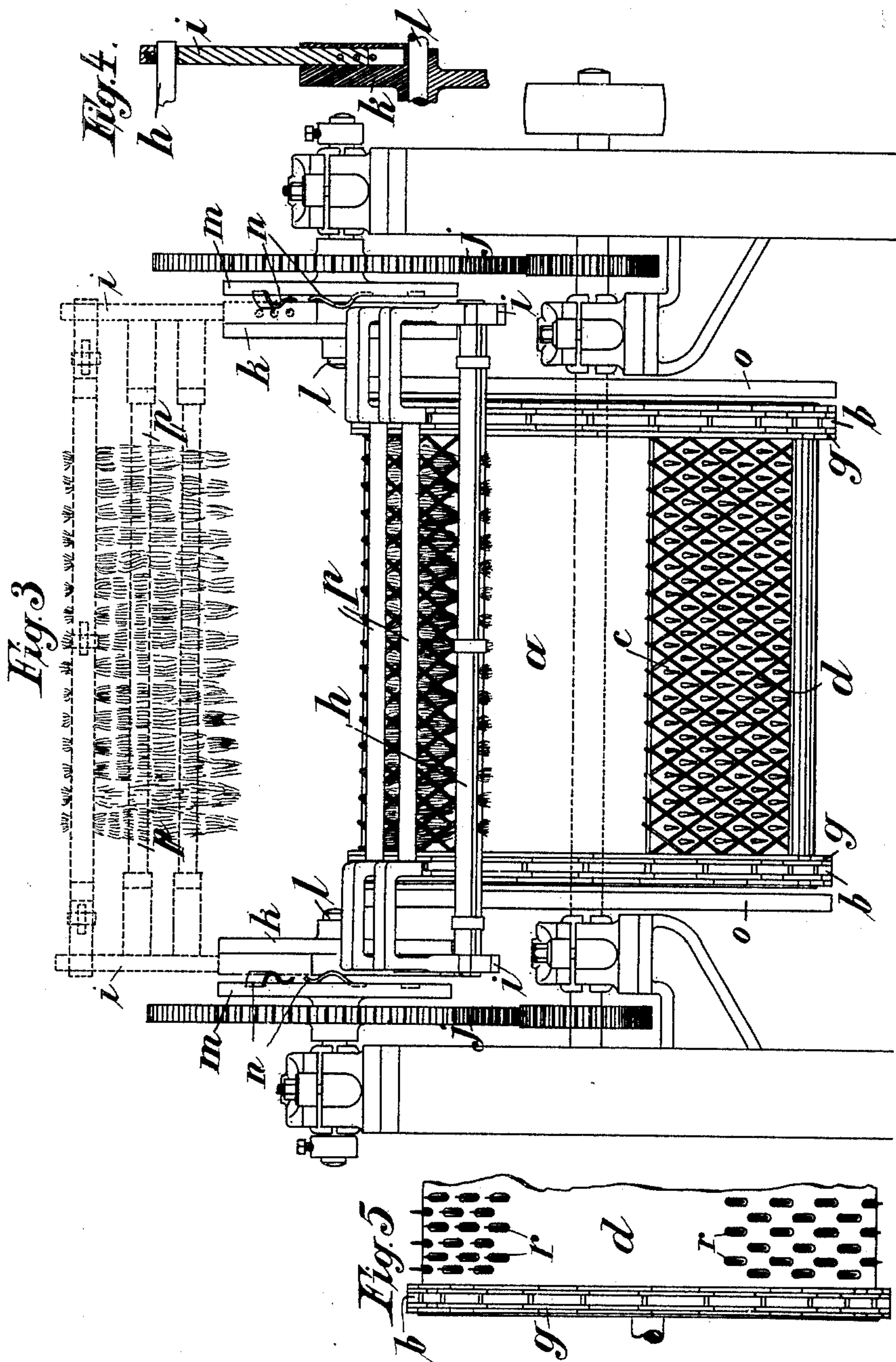
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UNITED STATES PATENT OFFICE.

EMIL KORNHUBER, OF LIBAU, RUSSIA.

HACKLING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 675,484, dated June 4, 1901.

Application filed March 31, 1900. Serial No. 10,984. (No model.)

To all whom it may concern:

Be it known that I, EMIL KORNHUBER, a subject of the Russian Emperor, residing at Libau, in the Empire of Russia, have invented a new and useful Hackling-Machine, of which the following is a specification.

The hackling-machines known up to the present time have the disadvantage that they turn out little well-hackled fiber and a great deal of coarser fiber, (tow,) while the product is also of less value than that hackled by hand. Hand-hackling is therefore always preferred to machine-hackling, especially for the finer kinds of fiber.

My invention relates to a hackling-machine which works on exactly the same principle as in hand-hackling, but possesses the advantage over the latter of increased mechanical power. In it the hackling begins, exactly as in hand-hackling, from the free end of the fibers and, progressing gradually, is continued to the other end, where they are firmly held, the material being clamped in a clamping-bar, which during the hackling is pressed against a revolving hackling-cylinder provided with teeth fixed upon sets of strips arranged around it parallel with the clamping-bar, the latter being raised up when the teeth on the strips begin to enter the material and being afterward lowered again just behind the toothed strips. In this way at first only the free ends of the fibers come in contact with the teeth, and they are then operated upon right up to the point where they are held, and the fibers are therefore finished with unusual completeness.

In the drawings, Figure 1 is a longitudinal section of the invention. Fig. 2 is a sectional detail view showing the parts in a different position from that illustrated in Fig. 1. Fig. 3 is a front view of the invention, the dotted lines indicating one position of some of the parts. Fig. 4 is a detail view, and Fig. 5 shows a portion of the drum.

The hackling-cylinder *a* is provided with strips *c* of hackling-teeth parallel with the axle and at equal distances apart and all of the same width.

The material is held in the clamp *h*, the ends of which are fixed to arms *i*, which are themselves attached to disks *k*, on which they are movable radially and adjustable in the

direction of their length, as illustrated in Fig. 4. The disks *k* turn freely on spindles *l* and face the driving-disks *m*, fixed upon the latter, which are set in revolution by toothed gears *j* from the main hackling-cylinder shaft. Upon the driving-disks *m* on the side adjoining the corresponding disks *k* are fixed a sufficient number of friction-springs *n*, which when at work by their elastic friction against the arms *i* or their carriers tend to force the latter in the opposite direction to the direction of revolution of the hackling-cylinder and to press them against the circumference of the latter. By this means the ends of the clamp or holder *h* are made to press upon the curved cams *o*, so that as soon as the clamp *h* begins to pass over the toothed hackling-strips it is raised, and directly it has passed the back end of the latter it is suddenly lowered again, and in this way the material is hackled from its outer end and the hackling is continued right up to the clamping-bar. These springs *n* serve as friction driving connections between the clamps and their driving disks or gearing, and by reason of their frictional character the hackling-clamp may be moved by hand to different positions.

In order that the material may be pressed into the teeth during the hackling process, pressure-rollers *p p* are carried in bearings on the arms *i*, which toward the end of the hackling are brought by the lowering of the arms *i* directly above the teeth.

The clamping of the material is effected when the arms *i* are turned to an upright position. After the material has been clamped the arms *i* are turned down and the machine set in operation. The clamp *h* is raised by the curved cams (see Fig. 2) and immediately behind each hackling-strip is suddenly lowered, the pressure-rollers then pressing the material between the teeth. (See Fig. 1.)

For the purpose of taking away the tow or coarser parts of the material removed by the teeth from the hackling-cylinder and carrying them to suitable machinery for any further treatment required an endless net *d* is very advantageously used.

The positive movement of the net around the hackling-cylinder *a* and a parallel guide-roller *f* for removing and conveying the coarser stuff is effected by means of chain-

wheels $b f'$ and chains g . It is not, however, necessary that the net should be in one piece. It may be made much more conveniently in separate parts, which correspond in their position relative to each other and in their width with the arrangement and width of the hackling appliances on the hackling-cylinder.

The material is raised from the teeth by the net d and is conveyed, for example, to a cleaning-cylinder q .

It should be noted that instead of the network an endless apron or cloth d , Fig. 5, may be used, in which suitable slits r are provided for the teeth to project through.

The hackling-clamp is brought by hand into the vertical position shown in Fig. 1 in dotted lines, when the finished material shall be removed and new material set in. This hackling-clamp may be held by hand in this position, or, as shown in Fig. 1, it may be pressed between the spring-clamps n , which stand above or which are turned into the most appropriate position.

I claim—

1. In combination, a hackling-cylinder, a series of hackling-strips thereon with spaces between them, a clamp, a pivoted support for the clamp and means for operating the support in a direction opposite to the direction of rotation of the cylinder, the movement of

the parts being so timed that the depending end of the material will be engaged by the front end of the strip as the support is swung and the clamp will be moved into the spaces between the hackling-strips, substantially as described.

2. In combination, the hackling-cylinder having the hackling-strips thereon, a clamp, means for moving said clamp toward the hackling-strip after the strip has engaged the free end of the material, and pressure-rollers for pressing the material between the teeth of the strip, substantially as described.

3. In combination, the hackling-cylinder having the hackling-strips with spaces between them, the cams o moving with the cylinder, a clamp for the material and a support for the clamp whereby it may be moved toward the hackling-cylinder to be controlled by the cam o , said clamp when the cam has passed by falling toward the cylinder in rear of the hackling-strip, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

E. KORNHUBER.

Witnesses:

W. SCHMETZ,
F. NOTHMAN.