

(No Model.)

2 Sheets—Sheet 1.

A. SCOTT.

FIBER RUBBING MACHINE.

No. 315,666.

Patented Apr. 14, 1885.

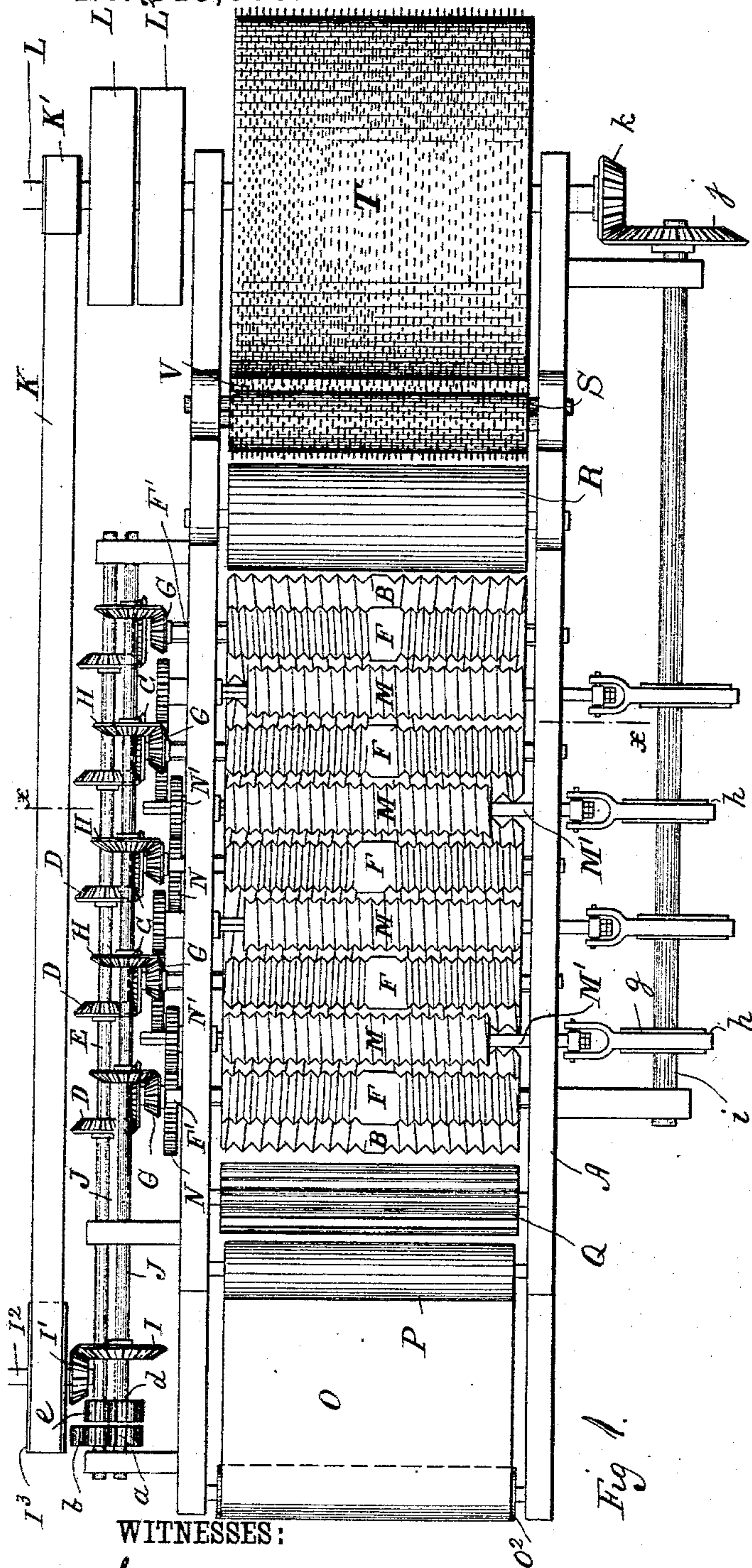


Fig. 1.

WITNESSES:

John Cook
C. Sedgwick

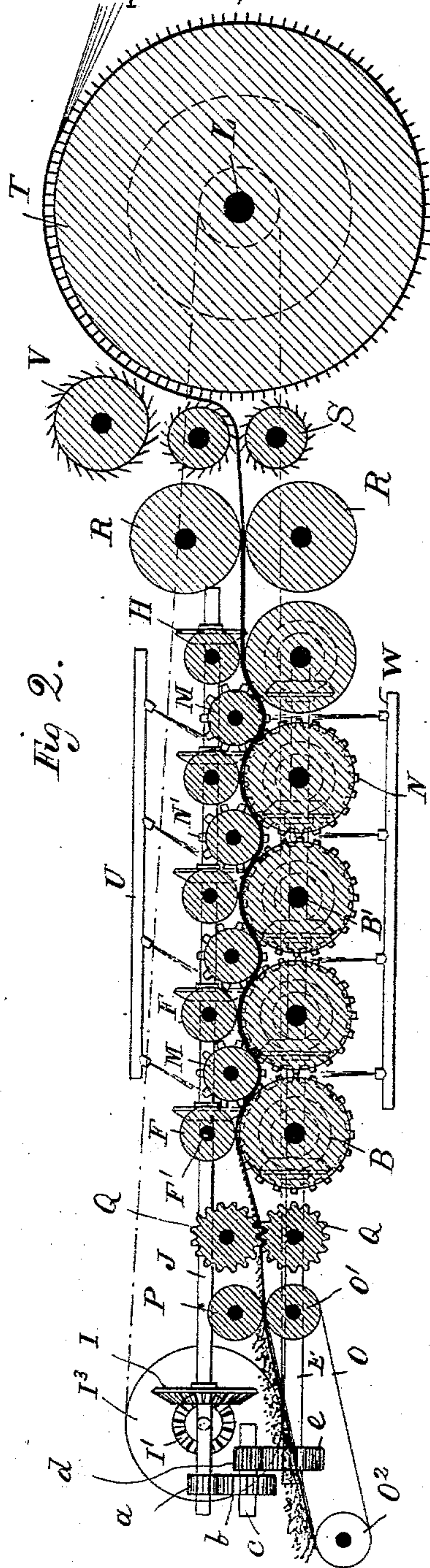


Fig. 2.

INVENTOR:

A. Scott

BY

Attorneys.

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2 Sheets—Sheet 2.

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Fig 3.

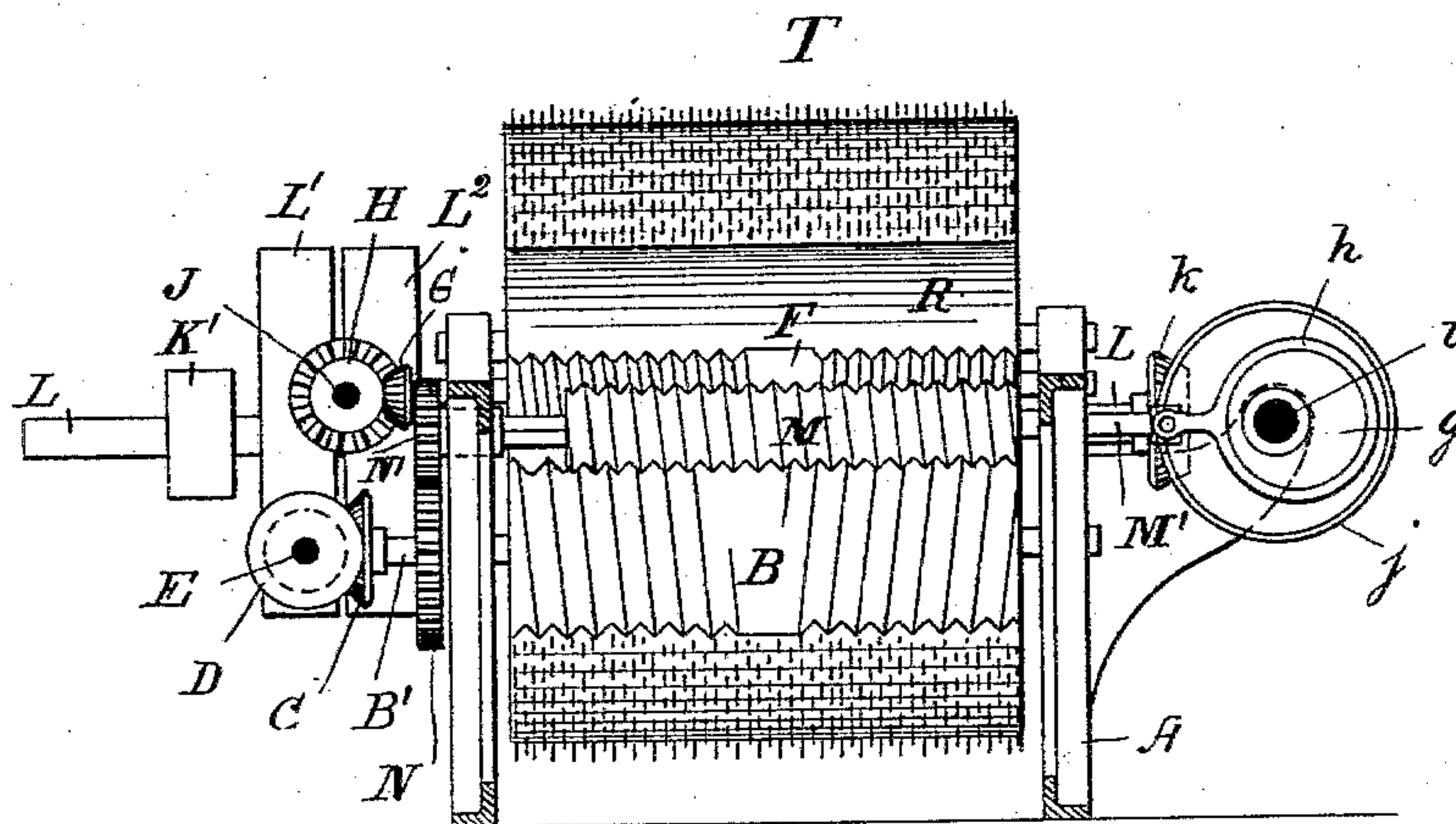
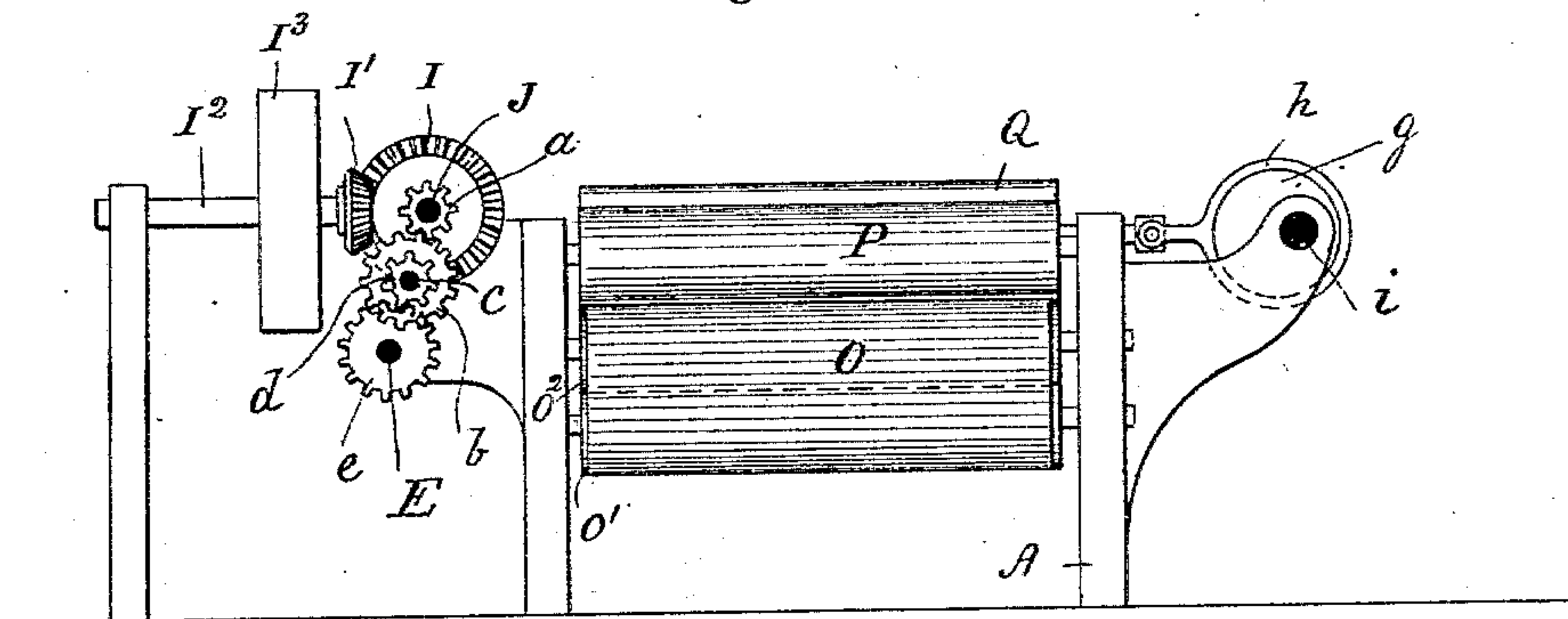


Fig 4.



WITNESSES:

Look
& Sedgwick

INVENTOR:

A. Scott

BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

ALEXANDER SCOTT, OF CRONLY, NORTH CAROLINA.

FIBER-RUBBING MACHINE.

SPECIFICATION forming part of Letters Patent No. 315,666, dated April 14, 1885.

Application filed August 9, 1884. (No model.)

To all whom it may concern:

Be it known that I, ALEXANDER SCOTT, of Cronly, in the county of Columbus and State of North Carolina, have invented a new and Improved Fiber-Rubbing Machine, of which the following is a full, clear, and exact description.

The object of my invention is to provide a new and improved machine for rubbing vegetable fiber, especially pine-needles, for the purpose of rendering the fiber useful for upholstery purposes or for spinning.

The invention consists in the combination, with a series of spirally or transversely fluted rollers, of smaller spirally or transversely fluted rollers above them, and of additional spirally or transversely fluted rollers which are moved in the direction of their length while revolving. The fibrous material is passed in between the several rollers which are revolved. Jets of hot water are delivered upon the rollers and the material between them. The water is then pressed from the material by suitable wringer-rollers, and the material is then picked or carded by a suitable picker or carder.

The invention also consists in various parts and details and combinations of the same, as will be fully described and set forth hereinafter.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a plan view of my improved fiber-rubbing machine. Fig. 2 is a longitudinal sectional elevation of the same, the frame of the machine not being shown. Fig. 3 is a cross-sectional elevation of the same on the line xx , Fig. 1. Fig. 4 is an end elevation of the same.

In a frame, A, a series of horizontal rollers, B, are journaled parallel with each other in such a manner that their side edges are almost in contact, the said rollers being spirally fluted, one half of each being fluted from right to left and the other from left to right, as shown. On the ends of the shafts B' of the said rollers B bevel cog-wheels C are mounted, which engage with bevel cog-wheels D on a shaft, E, at right angles to the several wheels B. At each roller B a roller, F, is held parallel with and

a short distance from the same, the several rollers F being also spirally fluted in opposite directions to the flutings of the rollers B, and the flutings of the rollers F being much smaller than the flutings of the rollers B. On the ends of the shafts F' of the rollers F bevel cog-wheels G are mounted, which engage with bevel cog-wheels H on a shaft, J, parallel with and above the shaft E. On the shaft J a bevel cog-wheel, I, is mounted, which engages with a bevel-pinion, I', on a shaft, I², provided with a belt-pulley, I³, over which a belt, K, passes, which also passes over a pulley, K', on the main driving-shaft L, on which are mounted the fixed and loose pulleys L' L². On the shaft J is mounted a pinion, a , engaging with a cog-wheel, b , on a shaft, c , on which is also mounted a pinion, d , engaging with a cog-wheel, e , on the shaft E, whereby the shaft E is operated from the shaft J, but at a much slower speed. Between the rollers F rollers M are arranged, which are held close to the two adjoining rollers B, and are slightly lower than the rollers F, the said rollers M being also fluted spirally and in one direction, their flutings being about the same size as the flutings of the rollers B. The shafts M' of the rollers M each have one end connected with a ring or strap, g , surrounding an eccentric disk, h , on a shaft, i , provided at one end with a bevel cog-wheel, j , engaging with a bevel cog-wheel, k , on the main driving-shaft L. The opposite ends of the shafts M' are squared, and pass loosely through cog-wheels N', held to revolve in one of the side pieces of the frame A, and engaging with cog-wheels N on the shafts B' of the rollers B, whereby the said rollers M are revolved.

At one end of the machine an endless belt or apron, O, is arranged, which passes over two rollers, O' O², and above the roller O' a presser-roller, P, is arranged. Between the first roller B and the rollers O' and P two longitudinally-fluted rollers, Q, are arranged for the purpose of laying the fibers straight and pressing them. At the other end of the machine two rubber wringer-rollers, R R, are arranged for pressing the water out of the fiber, and adjoining the rollers R two feed-rollers, S, having prongs on their surfaces, are arranged for feeding the fiber to the picker-roller T.

Above the upper feed-roller, S, a pronged

or carded roller, V, is arranged for cleaning the feed-rollers. The carding or picker roller T has a very much greater diameter than the feed-rollers S.

5 Above and below the above-described fluted rollers two pipes, U and W, are arranged, so as to deliver hot water upon the rollers and the material between them. Pine-needles or other fibrous material are delivered upon the
10 apron O, which carries them up between the rollers P and O' and in between the fluted rollers Q, which soften the needles and lay them straight. The needles are then carried over the rollers B, and are pressed and rubbed
15 between the rollers B and F and the rollers B and M, which rollers M also move transversely to the machine, thereby rubbing the needles and rendering them very fibrous. The hot water delivered from the pipes U and W
20 softens the needles, and also washes off any material that has been loosened and disintegrated by the rollers. The wringer-rollers R press out all the surplus water, and then the pine-needles are picked or carded by the
25 picker-roller T. The feed-rollers S hold the needles while the picker is picking them, and the roller V cleans the feed-rollers.

The machine operates very rapidly, and by means of it a large quantity of pine-needles
30 or other fibrous material can be treated in a very short time. The fibrous material that leaves the roller T is baled in the usual manner, or recarded and dried, according to the purpose for which it may be used.

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

1. In a fiber-rubbing machine, the combination, with two or more spirally or transversely fluted rollers, of smaller transversely
40 or spirally fluted rollers adjacent to them, and of additional transversely or spirally fluted rollers adjacent to the lower rollers, substantially as herein shown and described.

2. In a fiber-rubbing machine, the combination, with two or more spirally or transversely fluted rollers B, of the smaller transversely or spirally fluted rollers F, adjacent to
45 them, the spirally or transversely fluted rollers M, adjacent to the rollers B, between the rollers F, and devices for reciprocating the rollers M at the same time that they are being
50 revolved, substantially as herein shown and described.

3. In a fiber-rubbing machine, the combination, with a series of spirally or transversely

fluted rollers, B, of the transversely or spirally fluted rollers F above the rollers B, the spirally or transversely fluted rollers M above the rollers B and between the rollers F, the wringer-rollers R, and the picker-roller T, substantially as herein shown and described. 60

4. In a fiber-rubbing machine, the combination, with a series of spirally or transversely fluted rollers, B, of the transversely or spirally fluted rollers F above the rollers B, the spirally or transversely fluted rollers M above the rollers B and between the rollers F, the wringer-rollers R, the feed-rollers S, and the picker-roller T, substantially as herein shown and described. 65

5. In a fiber-rubbing machine, the combination, with a series of spirally or transversely fluted rollers, B, of the transversely or spirally fluted rollers F above the rollers B, the spirally or transversely fluted rollers M above the rollers B and between the rollers F, the wringer-rollers R, the feed-rollers S, the cleaning-roller V, and the picker-roller T, substantially as herein shown and described. 70

6. In a fiber-rubbing machine, the combination, with the spirally or transversely fluted rollers B, of the smaller transversely or spirally fluted rollers F above them, the transversely or spirally fluted rollers M between the rollers F, the wringer-rollers R, the picker-roller T, the longitudinally-fluted rollers Q, and the belt O, substantially as herein shown and described. 75

7. In a fiber-rubbing machine, the combination, with the spirally or transversely fluted rollers B, of the smaller transversely or spirally fluted rollers F above them, the transversely or spirally fluted rollers M between the rollers F, the wringer-rollers R, the picker-roller T, the longitudinally-fluted rollers Q, the belt O, and the pipes U W, for delivering jets of hot water upon the several rollers and the material between them, substantially as herein shown and described. 80

8. In a fiber-rubbing machine, the combination, with the rollers B, F, and M, of the gearing for revolving the rollers, the shaft *i*, the eccentric disks *h* on the same, and the rings *g* surrounding the said disks, which rings are connected with the shafts of the rollers M, substantially as herein shown and described. 85

ALEXANDER SCOTT.

Witnesses:

E. G. BURKEMAN,
JNO. S. WATTERS.