(No Model.)

L. ENGELMAYER.

APPARATUS FOR FREEING SULFITE CELLULOSE FROM RESIN.

No. 567,823. Patented Sept. 15, 1896.

Fig. 1.

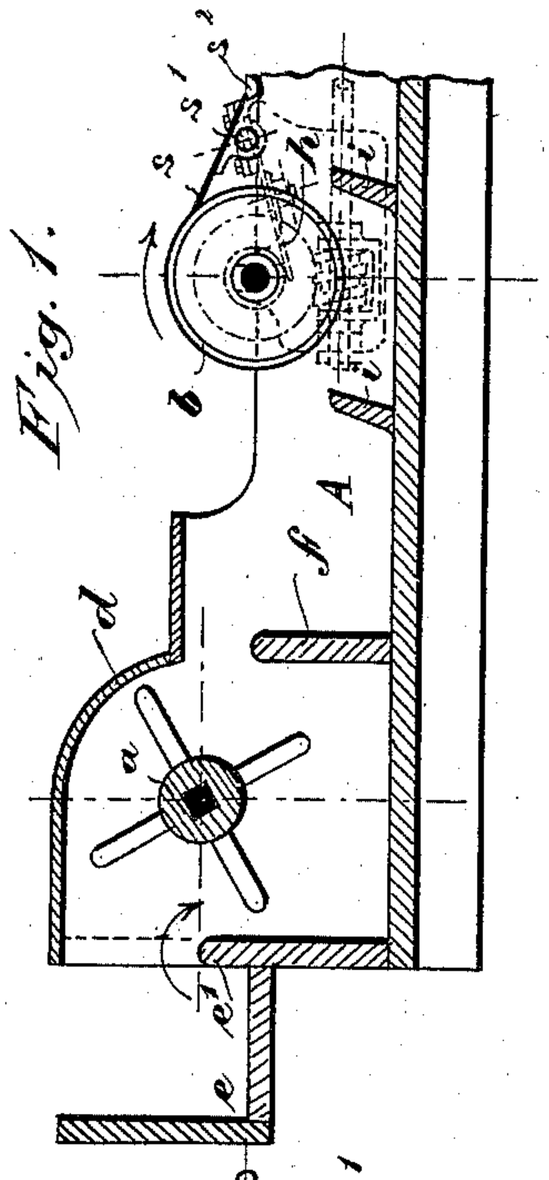
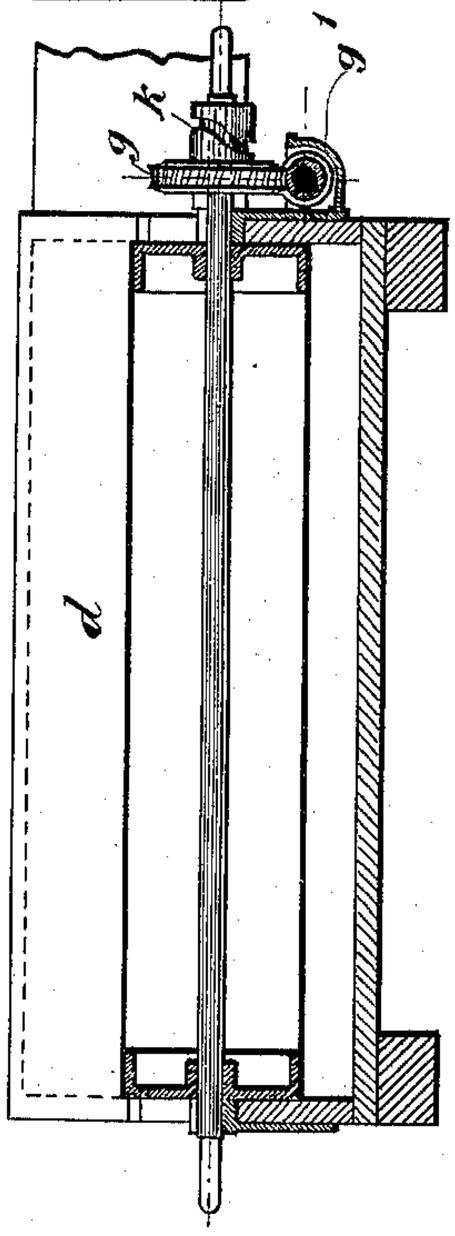


Fig. 2.

Fig. 3.



Witnesses:-
W. C. Pinckney
L. Holloway

Inventor:-
Ludwig Engelmayer,
By J. E. Ellis Bowen Atty.

UNITED STATES PATENT OFFICE.

LUDWIG ENGELMAYER, OF ASCHAFFENBURG, GERMANY.

APPARATUS FOR FREEING SULFITE CELLULOSE FROM RESIN.

SPECIFICATION forming part of Letters Patent No. 567,823, dated September 15, 1896.

Application filed March 8, 1895. Serial No. 541,052. (No model.) Patented in Germany February 9, 1895, No. 84,946; in Switzerland February 11, 1895, No. 9,711; in Sweden February 16, 1895, No. 6,078; in Norway February 23, 1895, No. 4,274; in Hungary March 1, 1895, No. 2,266, and in Austria June 8, 1895, No. 45/2,055.

To all whom it may concern:

Be it known that I, LUDWIG ENGELMAYER, a subject of the Emperor of Germany, residing at Aschaffenburg, Bavaria, Germany, have invented certain new and useful Improvements in Apparatus for Freeing Sulfite Cellulose from Resin, (for which I have obtained Letters Patent in Germany, No. 84,946, dated February 9, 1895; in Norway, No. 4,274, dated February 23, 1895; in Sweden, No. 6,078, dated February 16, 1895; in Switzerland, No. 9,711, dated February 11, 1895; in Hungary, No. 2,266, dated March 1, 1895, and in Austria, No. 45/2,055, dated June 8, 1895,) of which the following is a specification.

My invention relates to an apparatus for freeing pulp made by the sulfite process from resin. It is known that cooked wood-pulp made by the sulfite process, especially if made from pine trees, which are very rich in resin, contains a large quantity of resin not liquefied by the cooking. This resin not liquefied adheres loosely to the wood fibers in the form of small clots; and the present invention has for its object to free the wood-pulp from such clots of resin. Only one part of the resin is intimately associated with the fibers of the pulp, and this part is of no disadvantage or damage to the pulp; but another part of the resin is perfectly separated by the cooking process and adheres loosely to the fibers in the form of small pieces or small clots, and these pieces or clots, which oftentimes are quite numerous, it is essential to eliminate.

The apparatus consists mainly of a beater-shaft adapted to beat the pulp and form bubbles in the same, which bubbles take up the particles of resin or collect such particles as are separated from the pulp by the cooking process. The particles thus collected are removed from the solution by means of one or more rotary rolls, which revolve in the solution and take up the bubbles formed, said bubbles being then removed from the roll or rolls by means of a suitably-arranged scraper device, as hereinafter more particularly described.

In order to render the present specification more easily intelligible, reference is had to the accompanying drawings, forming part of the same, in which similar letters denote similar parts throughout the several views, Figure 1 being a longitudinal section through the apparatus; Fig. 2, a plan, and Fig. 3 a cross-section on the line X X in Fig. 2.

A beater-shaft having suitable beater-arms is mounted to rotate in a gutter A, through which the wood-pulp passes on its way to the sand-trap, said gutter being closed in by a cover *d*. The wood-pulp flows from the feed-chute *e* over the ledge *e'* into the space or gutter A, where it is beaten by the beater *a* until bubbles are formed therein, which serve to collect the resin particles contained in the wood-pulp. The wood-pulp thus covered with froth flows over the partition *f* and comes then in contact with a roll *b*, which dips in the froth and rotates in the opposite direction to that of motion of the wood-pulp. The resinous particles contained in the froth cling to the roll *b*, made of wood or of wood covered with lead or other suitable metal, and are removed from the same as it revolves by means of a scraper *s*, mounted in suitable position at the upper part of the roll. The scraper *s* is advantageously carried by a spindle *s'* and has at its rear a gutter to collect and lead away the particles taken off the roll. It is further advantageously provided at one end with a lever *h*, pivoted at about its middle to the roll-standard or other suitable part of the framing and having its free end in engagement with an eccentric groove *k* of the boss of the worm-wheel *g*, which serves to communicate motion to the roll *b* by means of a worm *g'*, mounted on suitable rotary shaft, whereby the scraper is actuated longitudinally of said roll. The roll *b* is advantageously mounted at the farther side of the first rib *i* of the sand-trap. If found advisable, several rolls may be employed instead of one only.

I claim as my invention—

1. The combination with a suitable receptacle, of a beater device to beat up a wood-pulp passing through said receptacle, to a froth, a rotary roll arranged behind said beater device and adapted to dip into the froth, means to conduct the beater solution past said rotary roll and means to scrape the

collected resinous particles from said roll substantially as described.

2. The combination with a suitable receptacle, of a beater device consisting of a rotary shaft having beater-arms thereon, a rotary roll *b* behind said beater and adapted to dip into the beaten solution, a scraper to said roll and means for conducting the wood-pulp past said beater device and roll substantially as described.

3. The combination with the gutter A for conveying the wood-pulp, of a horizontal rotary shaft mounted above said gutter and provided with beater-arms adapted to beat up the solution to a froth, a horizontal roll arranged behind said beater to rotate in a direction opposite to the movement of the solution and adapted to take up the resinous particles contained in the froth, a scraper mounted in suitable relation to said roll and serving to remove the resinous particles therefrom, substantially as described.

4. The combination of a beater device consisting of a rotary shaft having beater-arms thereon a rotary roll *b* behind said beater a scraper to said roll a shallow receptacle A in which said beater and roll are mounted an inlet-channel *e* to said receptacle, before said beater having ledge *e'*, a partition *f* behind said beater a rib *i* to said receptacle before said rotary roll and suitable driving-gear to actuate said roll and beater substantially as described.

5. The combination of a receptacle A having inlet-passage *e* with ledge *e'* a beater device mounted as specified, a partition *f*, ribs *i*, a rotary roll *b* after said first rib *i*, a scraper *s* to said roll, means to rotate said roll and beater and means to actuate said scraper longitudinally of said roll substantially as described.

6. The combination of a receptacle A having inlet-passage *e* with ledge *e'*, a beater device mounted as specified, a partition *f* ribs *i* a rotary roll *b* after the first of said ribs *i*, a scraper *s* to said roll, means to rotate said roll and beater and means to actuate said scraper longitudinally of said roll pivotally attached to the receptacle, and a cam-groove *k* on the roll shaft in which the free end of lever *h* engages said lever having its opposite end linked to the scraper-bar substantially as described.

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

LUDWIG ENGELMAYER.

Witnesses:

ALVESTO S. HOGUE,

JEAN GRUND.