No. 648,887. Patented May 1, 1900.

A. STEPHAN.

APPARATUS FOR MAKING SIZE.

(Application filed Mar. 20, 1899.)

(No Model.)

Fig. 1.

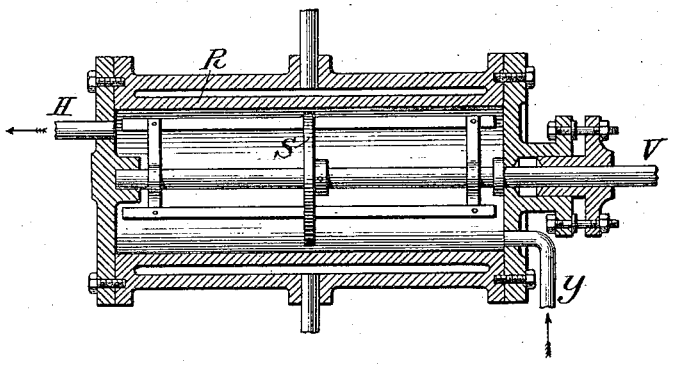
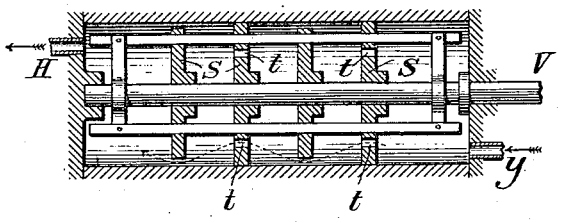


Fig. 2.



Witnesses.
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By his atty
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UNITED STATES PATENT OFFICE.

AUGUST STEPHAN, OF BREITENBACH, GERMANY.

APPARATUS FOR MAKING SIZE

SPECIFICATION forming part of Letters Patent No. 648,887, dated May 1, 1900.

Application filed March 20, 1899. Serial No. 709,772. (No model.)

To all whom it may concern:

Be it known that I, AUGUST STEPHAN, a subject of the German Emperor, residing at Breitenbach, Alsace, in the German Empire, have invented certain new and useful Improvements in Apparatus for the Continuous Treatment of Size, (for which I have applied for patents in Canada, dated September 21, 1898; in France, dated January 23, 1899; in Austria, dated January 23, 1899; in Switzerland, dated January 23, 1899; in Hungary, dated January 26, 1899; in Belgium, dated January 27, 1899; in England, dated January 30, 1899; in Italy, dated February 13, 1899; in Germany, dated February 9, 1899; in Russia, dated February 18, 1899, and in Japan,) of which the following is a specification.

My invention relates to apparatus for the continuous treatment of size; and it consists of the improvements which are fully set forth in the following specification and are shown in the accompanying drawings.

In such apparatus as now in use the raw material is stirred or agitated within the boiler; but there is no separation within the boiler of those portions of the mass which have already been boiled and treated from the freshly-entering portions.

It is the object of this invention to effect such a separation of those portions of the raw material which have already been treated or partially treated from the incoming fresh raw material, thereby increasing the quantity of material which may be efficiently treated in a given period of time and the quality of material produced.

In the accompanying drawings, Figure 1 is a longitudinal sectional view of an apparatus embodying my invention. Fig. 2 is a similar view illustrating a modification.

R is the boiler, cylinder, or chamber, having an inlet Y, through which the raw material is introduced, and the outlet H, through which the material is discharged after treatment.

V is the rotary shaft within the cylinder or chamber R, which carries the usual agitating or stirring devices.

S is a disk fitted on the shaft V, of which one or more may be used, disposed between the inlet Y and outlet H and dividing the cylinder or chamber R internally into two or more compartments, of which the first communicates with the inlet Y and the last with the outlet H. Communication is afforded between the compartments through the disk S either by a space between the periphery of the disk and the inner surface of the chamber R or by holes or perforations *t*. (See Fig. 2.) In Fig. 1 I have shown a single disk S of smaller diameter than the cylinder R, so as to form an annular space for the passage of the material. The raw material enters through the inlet Y and is stirred or agitated within the compartment on one side of the disk S and is finally forced by the pressure of the incoming material through the space about the disk S into the compartment on the other side of the disk, where it is further treated, and is finally forced out through the outlet H. Thus the material which has been partially treated and forced beyond the disk S is prevented by the disk, which acts as a partition, from passing back and mingling again with the freshly-entering portions of raw material, and consequently a more uniform treatment is effected.

In the construction shown in Fig. 2 I have employed a series of disks or partitions S, of which part are of the full diameter of the cylinder R, but are provided with openings or perforations *t*, and a part are of less diameter, similar to the partition or disk S of Fig. 1. In this construction the perforated disks and the disks of small diameter are alternated.

The minor details of construction may be varied without departing from the invention.

What I claim as new, and desire to secure by Letters Patent, is—

1. In apparatus for the continuous treatment of size, the combination of the closed boiling-cylinder, the agitator-shaft arranged therein, and one or more dividing-partitions within said cylinder of a diameter approximately equal to that of the interior of the boiling-cylinder, but having passage-ways of restricted area, dividing the boiling-cylinder internally into a series of compartments having restricted intercommunication for the passage of the material; substantially as and for the purposes described.

2. In apparatus for the continuous treatment of size, the combination of the closed boiling-cylinder, the agitator-shaft arranged

therein, and one or more dividing-partitions within said cylinder, of a diameter approximately equal to but slightly less than the interior of the boiling-cylinder, dividing the cylinder internally into a series of compartments having a restricted intercommunication for the passage of the material, substantially as and for the purposes described.

3. In apparatus for the continuous treatment of size, the combination of the closed boiling-cylinder, the agitator-shaft arranged therein, and a series of dividing-partitions within the cylinder dividing it internally into a series of compartments, part of said partitions being of a diameter slightly less than the interior of the boiling-cylinder and part being provided with perforations, whereby a restricted intercommunication between said compartments is afforded for the passage of the material.

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

AUGUST STEPHAN.

Witnesses:
MAX ADLER,
MAX J. BAEHR.