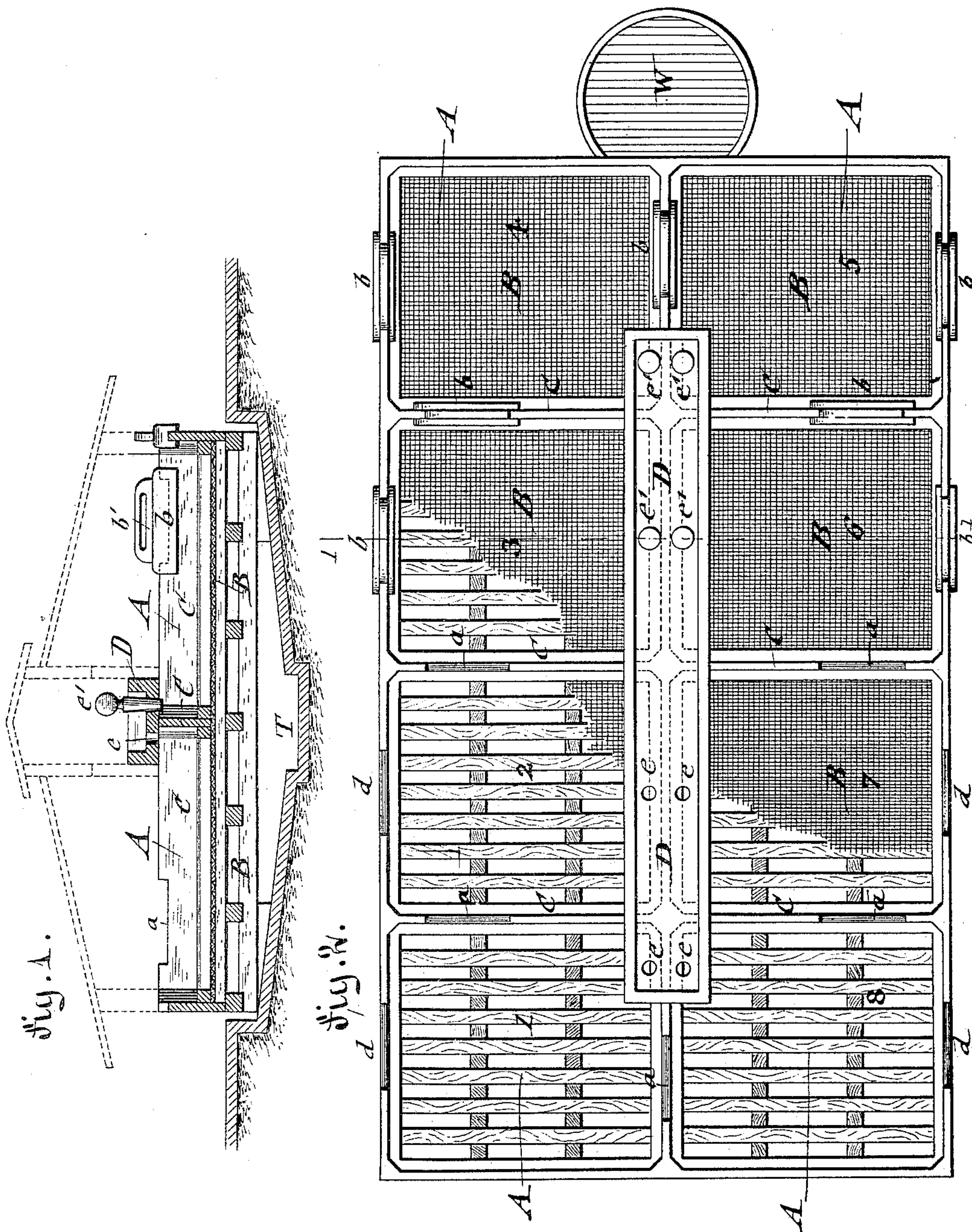


(No Model.)

G. C. F. SMIDTH.  
SAVE-ALL FOR PAPER MACHINES.

No. 467,775.

Patented Jan. 26, 1892.



WITNESSES:

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INVENTOR:

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# UNITED STATES PATENT OFFICE.

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## SAVE-ALL FOR PAPER-MACHINES.

**SPECIFICATION** forming part of Letters Patent No. 467,775, dated January 26, 1892.

Application filed December 19, 1890. Serial No. 375,231. (No model.) Patented in Denmark October 24, 1888, No. 962; in Norway June 26, 1889, No. 1,230, and in Sweden September 26, 1889, No. 1,980.

*To all whom it may concern:*

Be it known that I, GUSTAV CARL FAUGEL SMIDTH, a citizen of the Kingdom of Denmark, residing at Fredericksberg, in the Kingdom of Denmark, have invented certain new and useful Improvements in Save-Alls for Paper-Machines, (which was patented to me in Denmark, No. 962, dated October 24, 1888; in Norway, No. 1,230, dated June 26, 1889, and in Sweden, No. 1,980, dated September 26, 1889,) of which the following is a specification.

This invention relates to an improved save-all for paper-machines so that from five to ten percent. of the fibers are recovered that would otherwise be lost and run off with the water, while the water-courses and sewers are relieved of a large quantity of troublesome matter; and the invention consists in a save-all for paper-machines which is formed of a supply-trough having discharge-holes and plugs for closing said holes and of a series of compartments with strainer-bottoms below said trough, said compartments being separated by partitions having overflow-recesses and gates for opening and closing said recesses, so that the backwater can be conducted through said compartments in a gradually-diminishing stream, so as to deposit thereby the fibrous matter contained therein on the perforated or strainer bottoms.

In the drawings, Figure 1 represents a vertical transverse section of my improved save-all for paper-machines, taken on line 1 1, Fig. 2; and Fig. 2 is a plan of the same, with portions broken away, drawn on a larger scale.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents a series of compartments of equal size, which are provided with bottoms B, that are preferably covered with fine wire-gauze. The compartments are arranged in two parallel rows, as shown in the plan, each containing a superficial area of about one hundred and twenty square feet. The partitions C of the compartments are made of strong wooden framing, the bottoms being made of open-work frames of wooden slats and supporting-timbers, over which is stretched a layer of new or old paper-machine wire-gauze or other straining material. Each compart-

ment is connected with the adjoining ones by an overflow-recess *a* at its upper edge, which recesses are closed by removable gates *b*, having handles *b'*. Besides the overflow-recesses *a* the outer side wall of each compartment is provided with a second recess *d*, through which the water may be conducted to the outside of the compartment. The recesses *d* can also be closed by means of gates *b*. The recesses *d* serve for the purpose of conducting the overflow from the last compartment of the series to the outside, all the remaining recesses *d* of the compartments being closed by the gates *b*. A longitudinal trough D is arranged centrally above the compartments and provided with holes *e* in its bottom that are closed by plugs *e'*, which may either be removed or replaced by hand or by means of a rack or pinion or otherwise, so as to open or close the supply-holes and run the backwater into any particular compartment desired. The backwater is first conducted into the trough and distributed from the same successively to the different compartments, the fibers being collected by precipitation and filtration, while the backwater which passes through the strainer-bottoms is collected along inclined cemented bottoms to a central longitudinal trough T, collected in a cemented cistern or well W beneath and at one end of the apparatus and retained for use, as it contains valuable sizing and coloring-matter.

The apparatus is used as follows: The backwater from the paper machine is conducted into the trough D and through one of the holes of the same into one of the compartments A—for instance, into No. 4, which will soon be filled. As it is not of a sufficient capacity to contain all the water conducted to the same, owing to the fact that it cannot flow off through the closely-meshed bottom of the compartment, especially as the interstices of the same are quickly closed by the fine fibers deposited therein, the water overflows into the adjoining compartment No. 5 through the recess *a* in the partition between No. 4 and No. 5, from which the gate is removed, and so on through the various compartments as far as No. 2. Some of the water passes off through the strainer-bottoms, while the remainder flows



over the recess *d* in the outer wall of No. 2. It is supposed that one compartment (in this case No. 3) is shut off from the others by the gates, so as to be emptied and ready for cleansing purposes or otherwise. As soon as the cleaning of the compartment No. 3 is finished it is connected again with the adjoining compartments, so that the overflow into the same and to the outside takes place from the same. The compartment No. 4 is next shut off for emptying and cleaning, in which case the influx of backwater commences in compartment No. 5. The same mode of procedure is adapted for the other compartments in turn. When any compartment is shut off, the contents must stand for some time to allow the fibers which have been collected to drain off and settle on the bottom, from which they may be gathered up and reused in the manufacture of paper. By increasing the number of compartments the overflow-recesses in the side walls may be done away with; but as the stuff easily settles at the bottom a smaller apparatus with overflow-recesses is preferable. The apparatus is placed upon a brick foundation at the side of the water-outlet of the mill or directly above the same, according to circumstances, and should be covered to prevent the entrance of dust and dirt, as shown in dotted lines in Fig. 1.

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

1. A save-all for paper-machines, which consists of a series of compartments provided with strainer-bottoms and connected by overflow-recesses in their partitions, detachable gates for said overflow-recesses, and a distributing-trough above said compartments, provided with supply-holes and plugs for opening or closing said holes, substantially as set forth.

2. A save-all for paper-machines, consisting of a number of compartments provided with overflow-recesses in the side walls and with strainer-bottoms, partitions provided with overflow-recesses, removable gates for the overflow-recesses of the side walls and partitions, and a distributing-trough extending above the compartments and having supply-holes and plugs for opening or closing said holes, substantially as set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

GUSTAV CARL FAUGEL SMIDTH.

Witnesses:

SAPHUS JENSEN,  
JACOB BANDESEN.