

No. 815,876.

PATENTED MAR. 20, 1906.

B. S. SUMMERS.  
PROCESS OF PREPARING FIBERS.  
APPLICATION FILED MAR. 6, 1905.

Fig. 1.

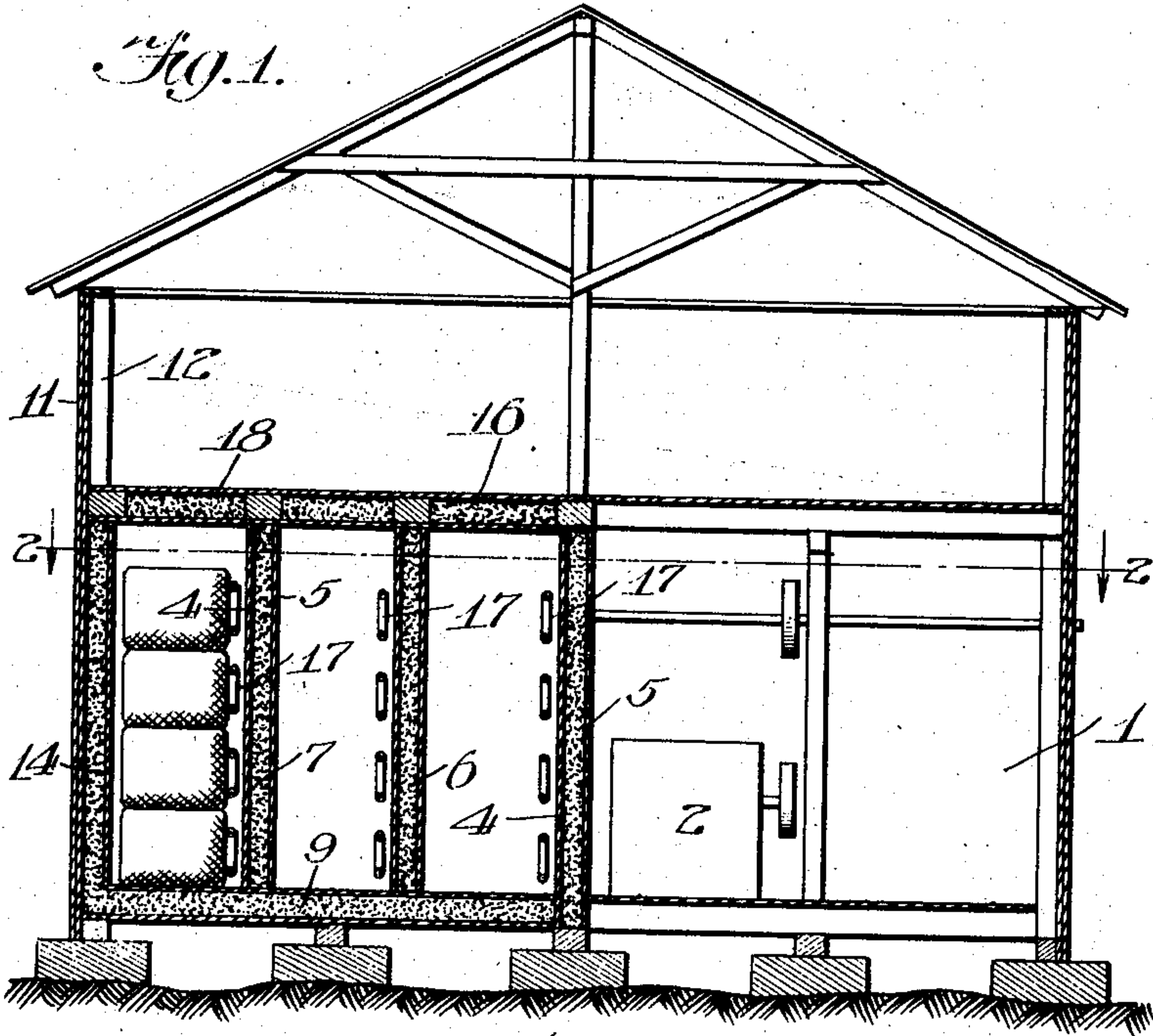


Fig. 3.

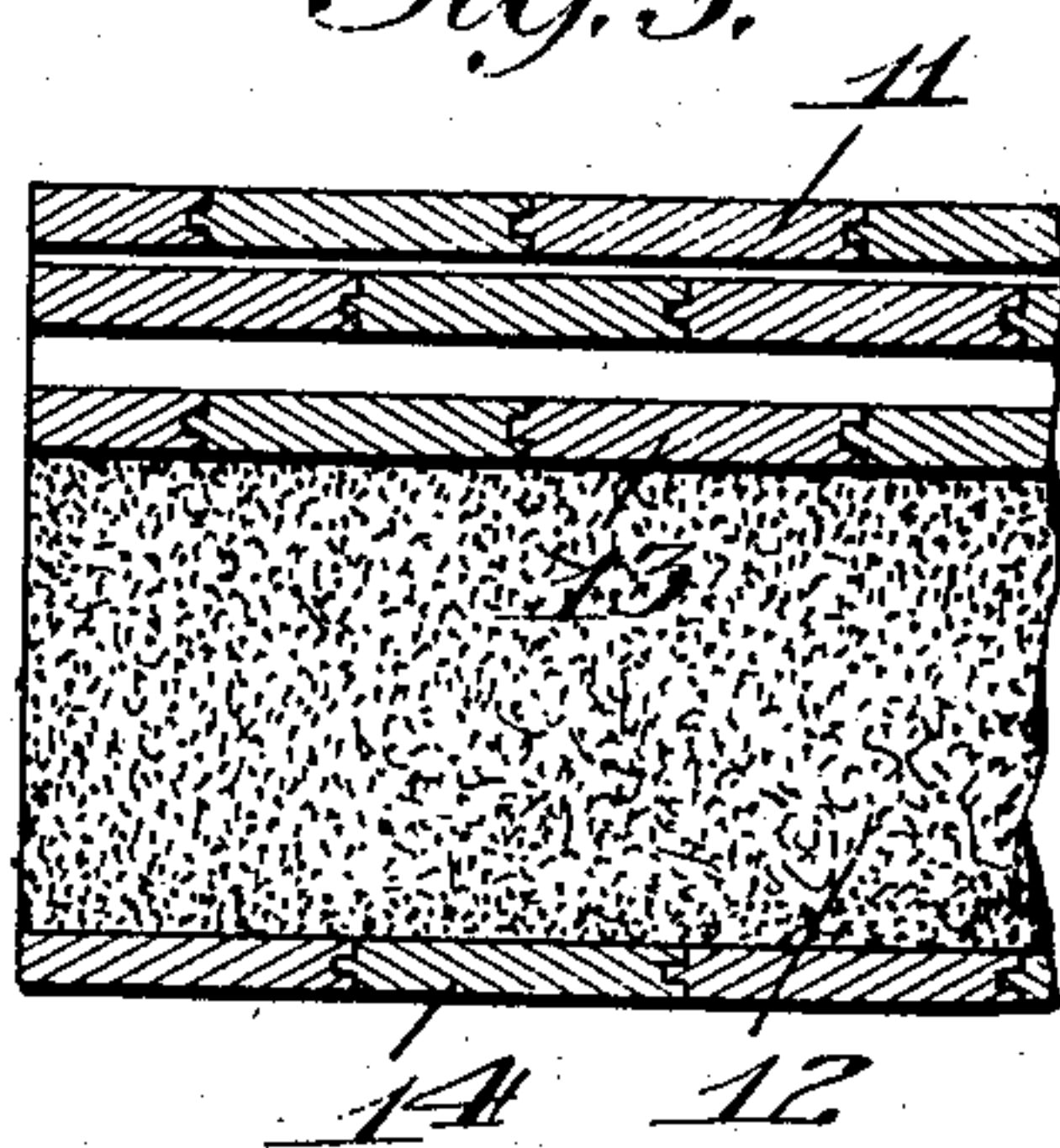


Fig. 2.

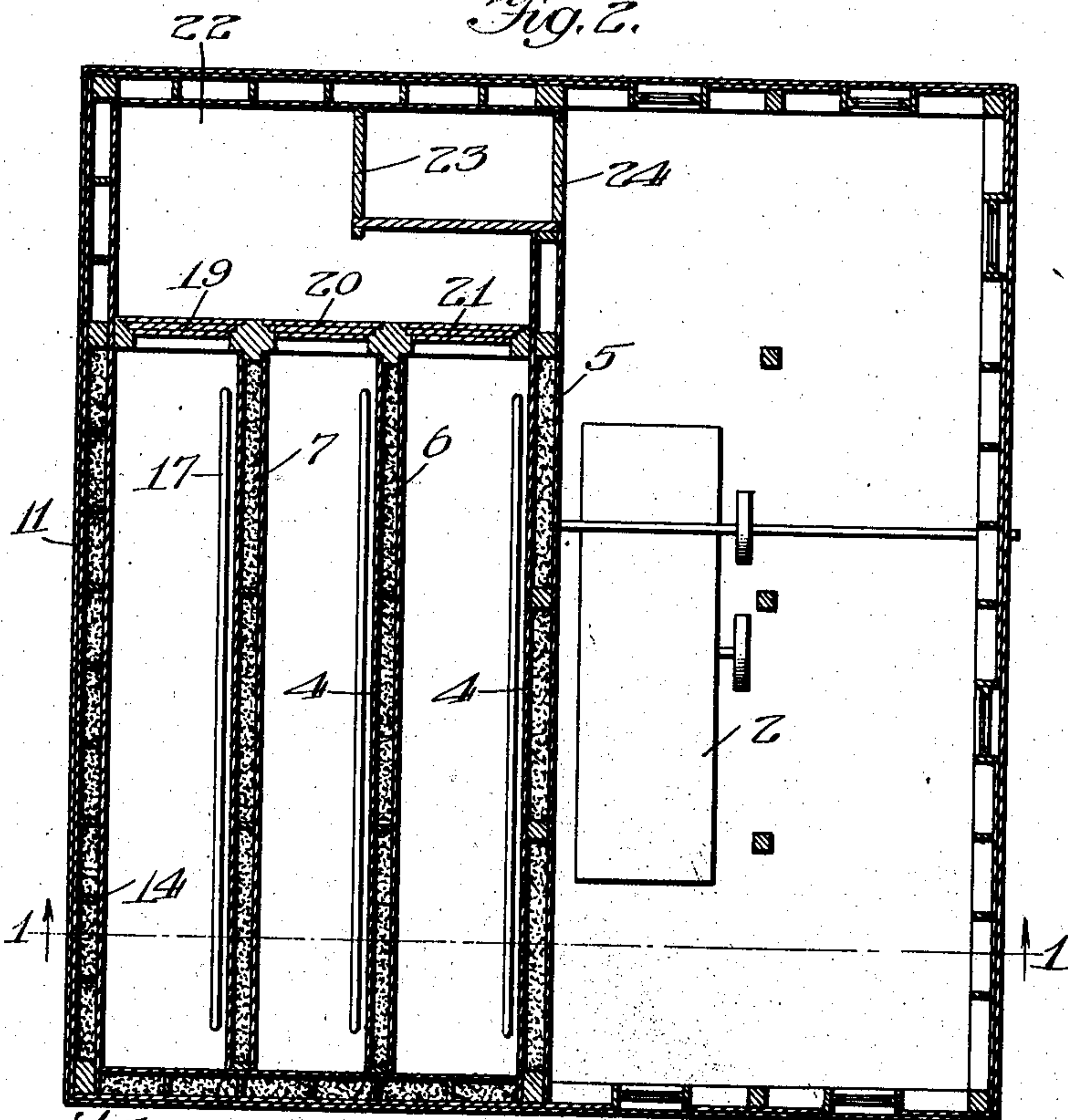
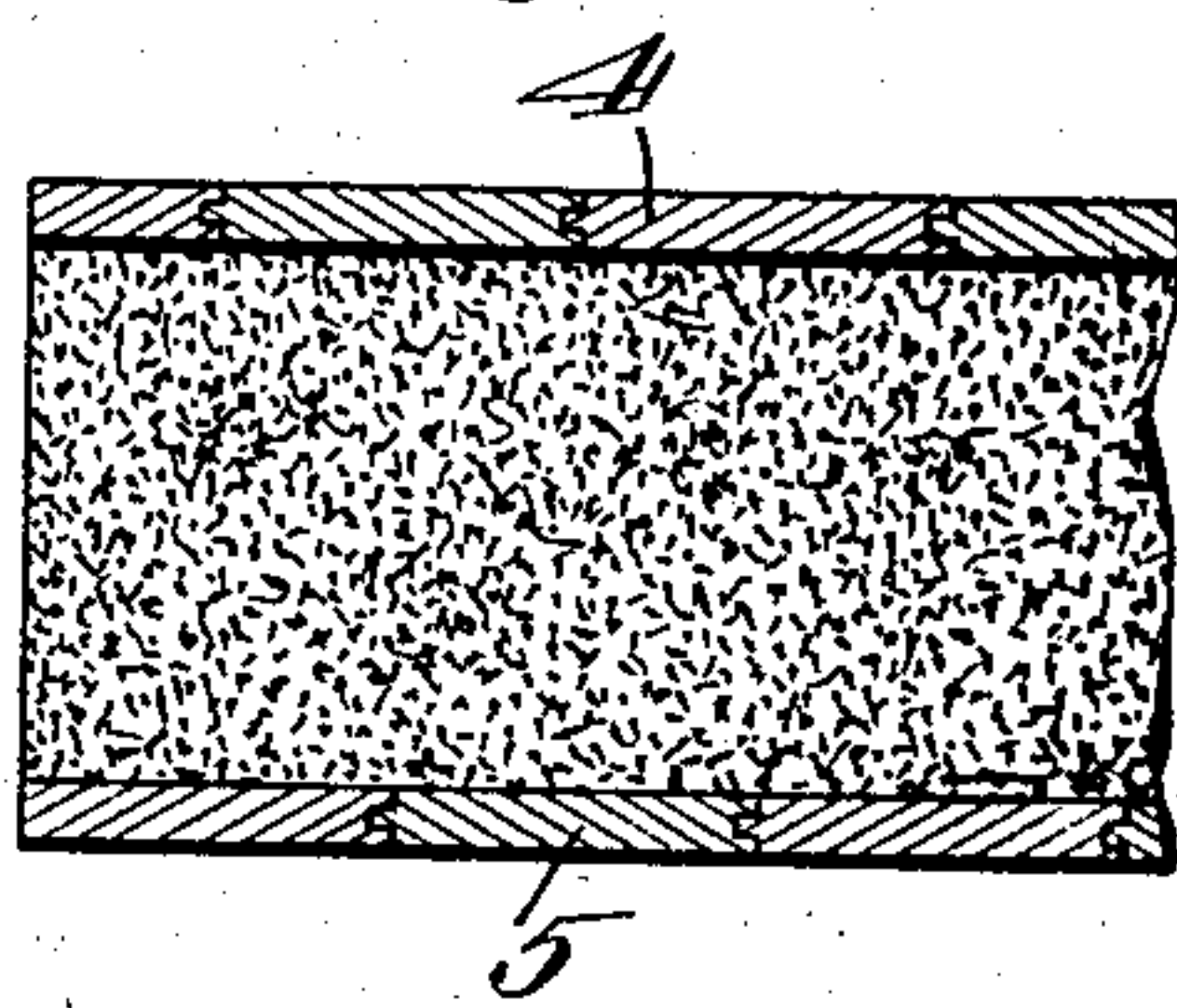


Fig. 4.



Witnesses:

Robert H. Weir  
M. Perry Halm

Inventor:  
Bertrand A. Summers  
By: Louis Addington  
Attys:



# UNITED STATES PATENT OFFICE.

BERTRAND S. SUMMERS, OF PORT HURON, MICHIGAN, ASSIGNOR TO THE SUMMERS FIBER COMPANY, OF CHICAGO, ILLINOIS, A CORPORATION OF WEST VIRGINIA.

## PROCESS OF PREPARING FIBERS.

No. 815,876.

Specification of Letters Patent.

Patented March 20, 1906.

Continuation of application Serial No. 238,001, filed December 22, 1904. This application filed March 8, 1905. Serial No. 248,608.

*To all whom it may concern:*

Be it known that I, BERTRAND S. SUMMERS, a citizen of the United States, residing at Port Huron, in the county of St. Clair and State of Michigan, have invented new and useful Improvements in Processes of Preparing Fibers, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

My invention relates to a process of preparing fibers—such as flax, hemp, and other bast fibers—and has for its object an improved process of separating the fiber from the woody material of the stalks or straw and an improved condition or quality of the separated fiber.

I have discovered that by subjecting the straw to prolonged refrigeration at a comparatively low temperature and separating the fiber from the woody material of the straw while the latter is still in refrigerated condition the separation of the fiber from the woody material is not only facilitated, but an improved quality of fiber obtained. The prolonged refrigeration of the straw makes its woody material brittle and facilitates its separation from the fiber when the straw is passed through the cleaning-machine or other separating device, while the retention of moisture in the straw, due to the refrigerated condition of the latter, prevents any tendency of the fiber to run to tow and preserves its quality of "nature" unimpaired. The preservation of a condition of full nature in the separated fiber thus attained enhances its spinning qualities and correspondingly adds to its value. I have found in practice that the subjection of the straw to a refrigerating temperature ranging from zero to 10° above zero Fahrenheit for a period of from sixty to one hundred hours is productive of good results and that even a lower temperature and a more prolonged period of refrigeration are not objectionable and may at times be beneficial.

I have illustrated means for practicing the process of my invention in the accompanying drawings, in which—

Figure 1 is a transverse section of a mill in which the fibers may be prepared in accordance with my invention. Fig. 2 is a section taken on the line 2 2 of Fig. 1, and Figs. 3 and

4 are detailed views of the walls of the refrigerating-inclosure.

Like numerals refer to like parts in the several figures.

It will of course be understood that my invention may be practiced by means of any suitable instrumentalities, and for the purpose of disclosing my invention I have illustrated a typical form of refrigerating-inclosure and a typical form of cleaning-machine; but these may be varied to suit demands or specific requirements.

In the apartment 1 is placed a suitable cleaning-machine 2 of any desired construction, this machine being illustrated diagrammatically. A partition separates the apartment 1 from the refrigerating apartment or inclosure 3 and is preferably formed as shown in Fig. 4, wherein walls 4 and 5 are provided at a short distance apart, the intervening space being filled with wood-shavings or the like to form air-proof and moisture-proof partitions. The apartment 3 may be divided into a plurality of refrigerating-chambers by partitions 6 7. The partitions 6 and 7 and the roof 8 and floor 9 may be constructed substantially as illustrated in Fig. 4. The outside wall of the refrigerating-apartment 3 may be constructed as illustrated in Fig. 3, wherein there is an outer wall 11, formed of two layers of wood, between which is arranged a layer of felt, and an inner wall comprising layers 13 and 14 with an interposed packing of wood-shavings or the like. An air-space may be provided between the layers 11 and the layer 13. Hatches 16 may be formed in the roof of each compartment, through which the bundles of straw or fiber-stalks may be passed. A series of refrigerating-pipes 17 may be provided within the refrigerating-chambers in convenient positions. The refrigerating-compartments communicate by doors 19, 20, and 21, respectively, with the handling-room 22, which is provided with double doors 23 24, opening into the cleaning-room 1. By the arrangement of the double doors the fibers may be transported from the refrigerating-chambers to the cleaning-room without altering the temperatures of the respective inclosures.

It is desirable that the straw or stalks shall contain a certain amount of moisture, both for proper working in the cleaning-machine



and for the resulting condition of the extracted fiber. If attendant conditions be such that the straw is abnormally dry prior to refrigeration, it may be moistened either before or after refrigeration. In the latter case the addition of the moisture can be readily accomplished in the room in which the cleaning-machine is located by properly regulating the temperature and moisture of the atmosphere in such room and causing the requisite amount of moisture for the straw to be supplied by precipitation.

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

1. The herein-described process of preparing vegetable fibers, which consists in subjecting the same to prolonged artificial refrigeration and then breaking and separating the wood therefrom while in refrigerated condition.

2. The herein-described process of preparing vegetable fibers, which consists in subjecting the same to prolonged artificial refrigeration and then passing the same through a

cleaning-machine while in refrigerated condition.

3. The herein-described process of preparing vegetable fibers, which consists in subjecting the same to prolonged artificial refrigeration, then adding moisture, and finally passing the same through a cleaning-machine while in refrigerated condition.

4. The herein-described process of preparing vegetable fibers, which consists in first subjecting the same to prolonged refrigeration in an artificially-cooled inclosure and then removing the same therefrom and passing the same while in refrigerated condition through a cleaning-machine located in an atmosphere of higher temperature, substantially as and for the purpose described.

In witness whereof I have hereunto subscribed my name in the presence of two witnesses.

BERTRAND S. SUMMERS.

Witnesses:

DAVID MAC TAGGART,  
HARRIET T. SUMMERS.