

No. 709,652.

Patented Sept. 23, 1902.

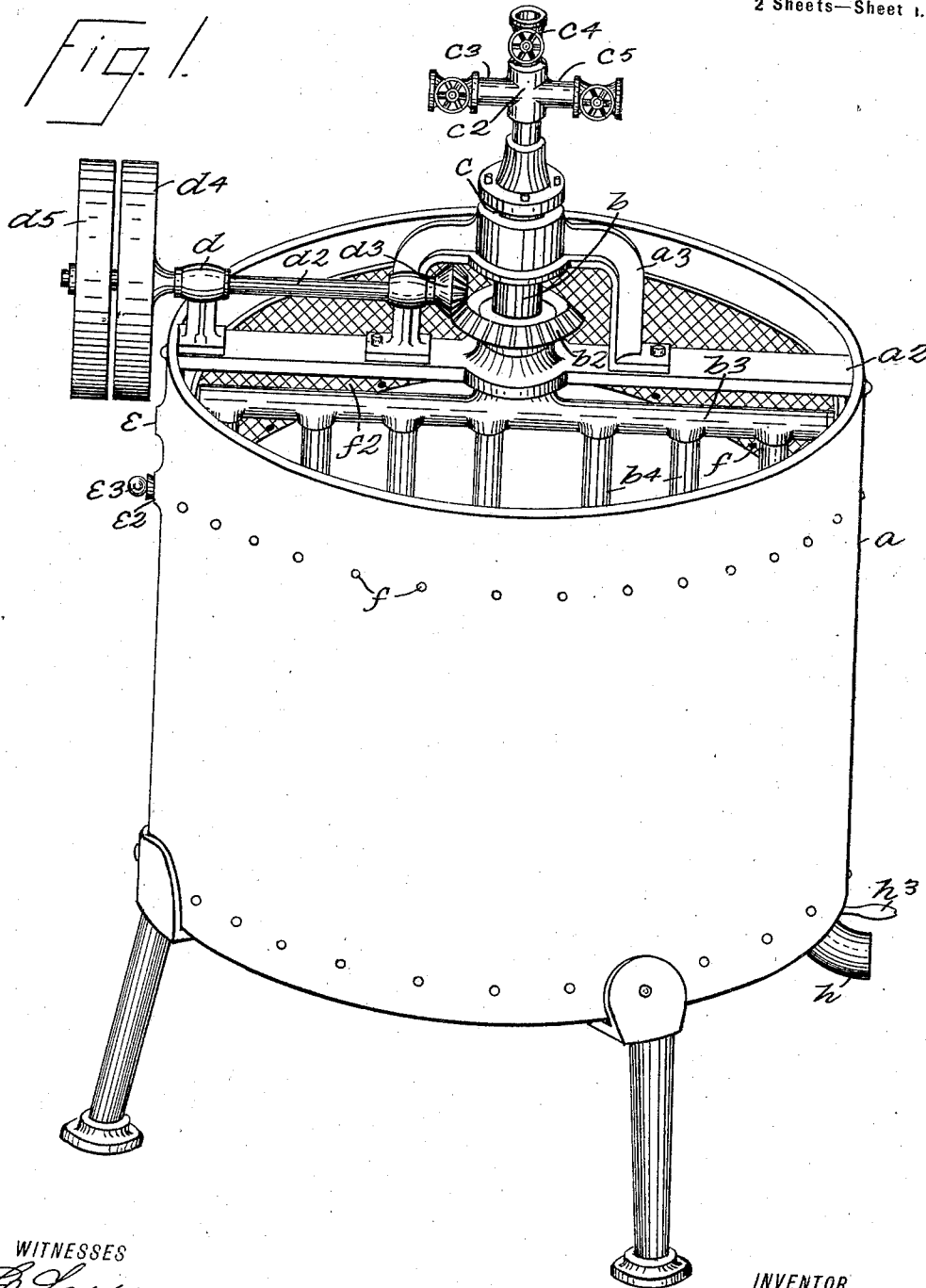
C. SPINDLER.

APPARATUS FOR CLEANING CELLULAR TISSUES USED IN CLARIFYING BEER.

(Application filed Apr. 2, 1902.)

(No Model.)

2 Sheets—Sheet 1.



WITNESSES

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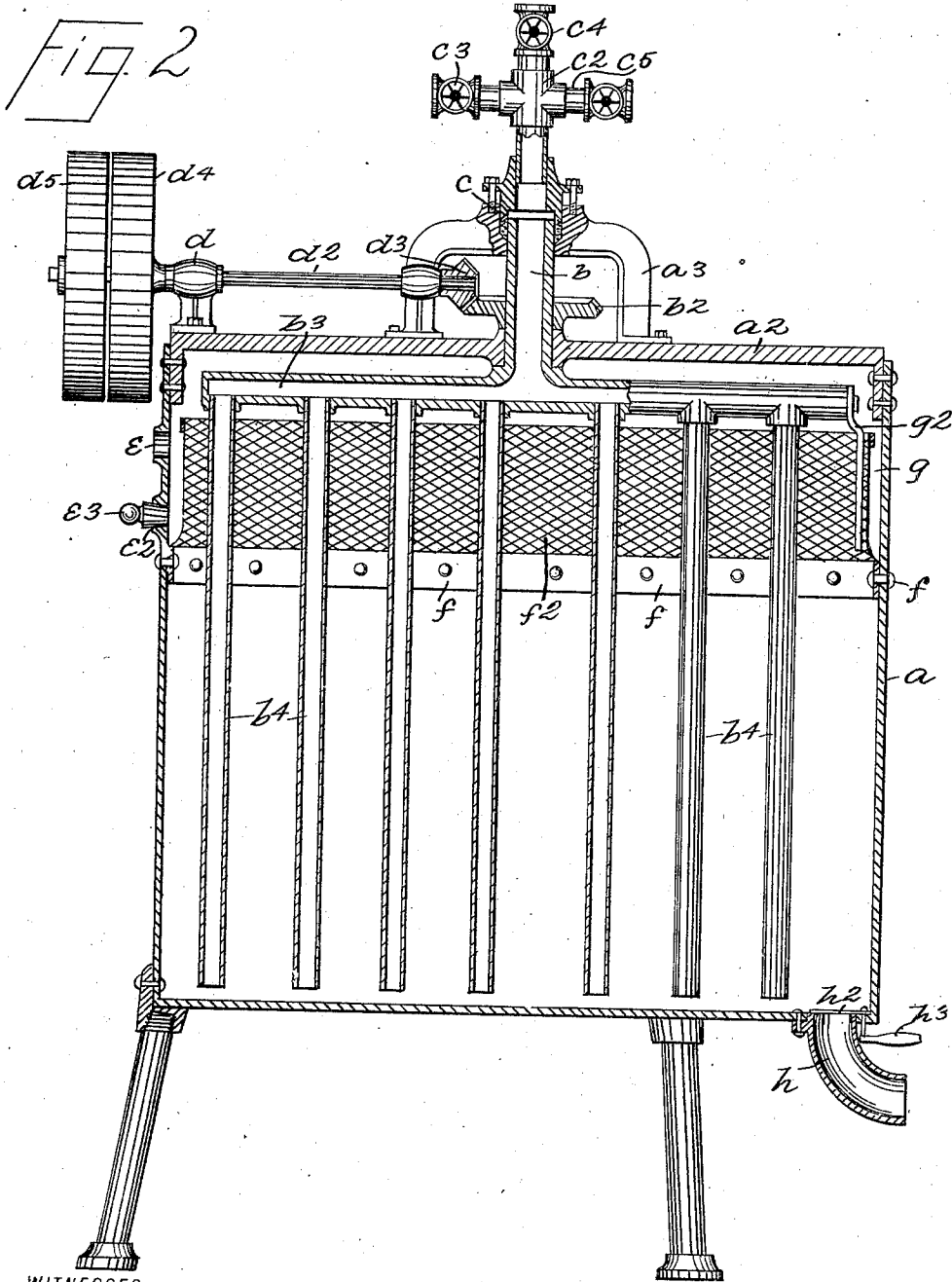
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WITNESSES

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UNITED STATES PATENT OFFICE.

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APPARATUS FOR CLEANING CELLULAR TISSUES USED IN CLARIFYING BEER.

SPECIFICATION forming part of Letters Patent No. 709,652, dated September 23, 1902.

Application filed April 2, 1902. Serial No. 101,039. (No model.)

To all whom it may concern:

Be it known that I, CHARLES SPINDLER, a citizen of the United States, residing at Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Apparatus for Cleaning Cellular Tissues Used in Clarifying Beer, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

The object of this invention is to provide an improved apparatus for cleaning cellular tissues of wood, cotton, asbestos, or similar material when used for the purpose of clarifying beer or other liquors, a further object being to provide an apparatus of this class which is simple in construction and operation and by means of which the required work may be done much more quickly and effectively than with other apparatus for this purpose now in use.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which the separate parts of my improvement are designated by the same reference characters in each of the views, and in which—

Figure 1 is a perspective view of my improved apparatus, and Fig. 2 a sectional side elevation thereof.

In the practice of my invention I provide a tub or cylindrical receptacle *a*, which is preferably open at the top and provided with a transverse bracket *a*², over the central portion of which is arranged a yoke or support *a*³, and passing vertically through the bracket *a*² is a tube *b*, provided with a beveled gear-wheel *b*², which is rigidly secured thereto by a key or otherwise, and the lower end of the tube *b* is provided with a tubular cross-head *b*³, with which is connected a plurality of depending tubular arms *b*⁴, which are in communication with the cross-head *b*³ and the lower ends of which are open. The cross-head *b*³ of the tube *b* is slightly shorter in length than the transverse diameter of the receptacle *a*, and the tubular arms *b*⁴ extend downwardly almost to the bottom of said tub or receptacle.

The yoke or support *a*³ is provided with a packing-box *c*, with which is connected a three-way coupling *c*², which is in communi-

cation with the tube *b* and which is provided with three branches *c*³, *c*⁴, and *c*⁵ for the admission of steam, water, and air, and passing through one side of the yoke or support *a*³ and through a bearing *d*, connected with the bracket *a*², is a shaft *d*², provided with a beveled gear-wheel *d*³, which operates in connection with the wheel *b*², and said shaft *d*² is provided with a fixed pulley *d*⁴ and a loose pulley *d*⁵.

At one side of the tank or tub *a* and near the top thereof are overflow ports or passages *e* and *e*², which may be closed by a plug *e*³, only one of which is shown, and secured just beneath the bottom overflow port or passage *e*², as shown at *f*, is an annular screen *f*², between the top portion of which and the walls of the tub or receptacle *a* is an annular space *g*, and one end of the cross-head *b*³ is provided with a finger *g*², which when the said cross-head is turned moves over the inner surface of said screen and removes therefrom any matter that may be deposited thereon.

In clarifying or purifying beer or similar liquids it is customary to pack cellular tissues of wood, cotton, asbestos or suitable material in a suitable receptacle and filter the beer or other liquids therethrough, and in this operation the cellular tissues become clogged with yeast or albuminous matter and the capacity of the filter is decreased and the operation thereof rendered ineffective and it becomes necessary to cleanse or clean the cellular tissues, and it is for this purpose that the apparatus herein described and claimed is provided. Various forms of apparatus have heretofore been employed for the purpose specified, and in such apparatus steam is generally introduced to kill or sterilize the yeast-germs, an agitator being employed for the purpose of stirring or moving the pulp in a tub or other suitable receptacle, water being also employed to wash out the albuminous and other substances; and in other apparatus air is sometimes introduced in jets from outside the receptacle while the tissues to be cleaned are agitated. In my improved apparatus the tissues to be cleaned are placed in the tub or receptacle *a*, the cross-head *b*³ is revolved by means of the shaft *d*², and steam is first introduced to kill the germs, after which air and water are introduced

through the tubular extensions c^3 , c^4 , and c^5 of the coupling c^2 . In this operation the contents of the tub or receptacle are continuously agitated, and the introduction of steam, 5 air, and water creates an action within said tub or receptacle which thoroughly cleanses and purifies the cellular tissues, and as the albuminous and other matter is removed from said tissues it rises and passes through the 10 screen f^2 and out through the ports or passages e and e^2 , and the finger g^2 , connected with the cross-head b^3 , keeps the screen f^2 clean and removes any pulp therefrom that might be deposited thereon. The turning of the 15 cross-head b^3 and of the arms b^4 continuously stirs and agitates the cellular tissues or pulp, and the air which is discharged at the bottom of the tub or tank rises therethrough and permeates the entire mass and in connection 20 with the steam and water thoroughly cleanses the cellular tissues and removes therefrom all foreign substances, and when desired the cellular tissues or pulp may be drained off through the bottom of the tub or tank by 25 means of the pipe h , which is controlled by a valve h^2 , provided with a handle h^3 .

The entire apparatus is simple in construction and operation and perfectly adapted to accomplish the result for which it is intended, 30 and changes in and modifications of the construction described may be made without departing from the spirit of my invention or sacrificing its advantages.

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

1. An apparatus of the class described com-

prising a tub, a bracket or support secured across the top thereof, a vertically-arranged tube mounted therein and provided at its 40 lower end with a tubular cross-head adapted to turn in said tub, said cross-head being provided with downwardly-directed tubular arms, said tube being provided at its upper end with a coupling having a plurality of 45 branches and means for turning said tube, said tub being also provided near its top with overflow ports or passages, and beneath the same with an annular screen which is secured therein and between which and the walls of 50 the tub is an annular space, substantially as shown and described.

2. In an apparatus of the class described, a tub, a bracket or support secured across 55 the top thereof, a vertically-arranged tube mounted therein and extending downwardly into said tub, and provided at its lower end with a tubular cross-head adapted to turn with said tube in said tub, downwardly-directed tubular arms connected with said cross- 60 head and a three-way coupling connected with the upper end of said tube above said bracket or support, and means for turning said tube, substantially as shown and described. 65

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 28th day of March, 1902.

CHARLES SPINDLER.

Witnesses:

F. A. STEWART,
F. F. TELLER.