(No Model.)

T. E. SCHIEFNER.

BOILER FOR TREATING RHEA, RAMIE, &c.

No. 339,332. Patented Apr. 6, 1886.

FIG. 2.

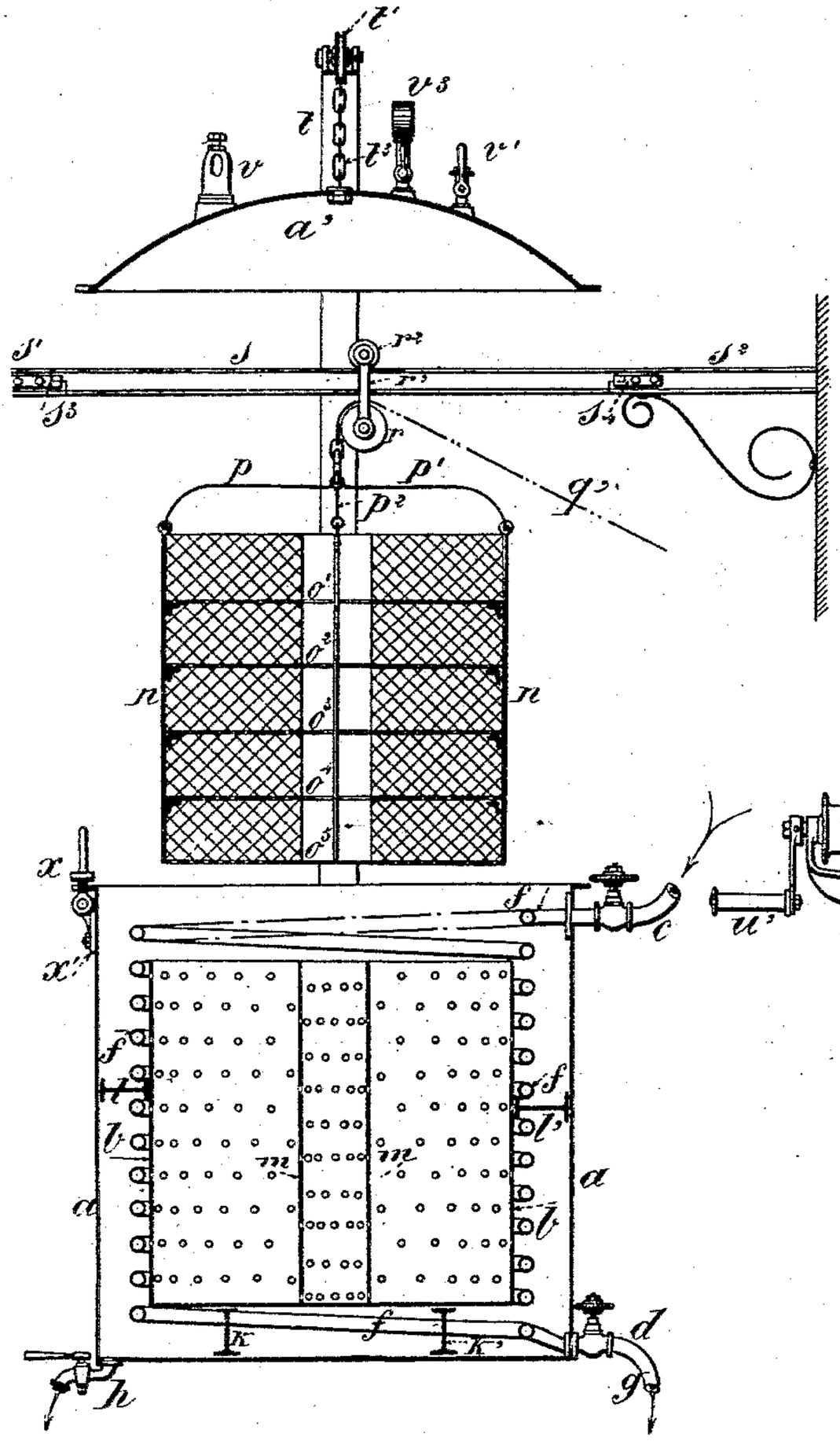
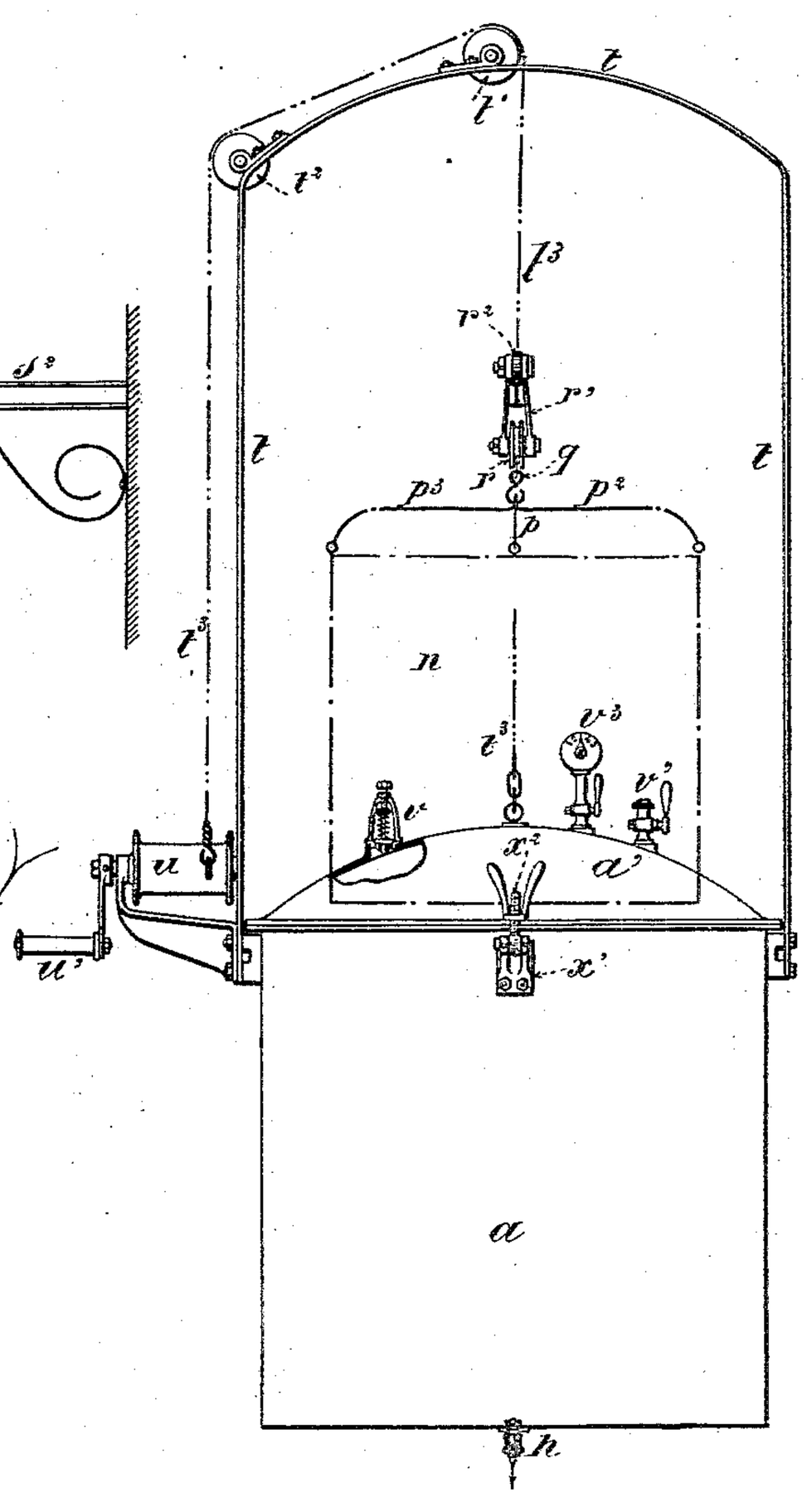


FIG. 1.



Witnesses:
Henry Sanford Bergman.
Alphonse Bletry

Inventor:
Théodore Eugène Schiefner

UNITED STATES PATENT OFFICE.

THÉODORE EUGÈNE SCHIEFNER, OF ESSONNES, DEPARTMENT OF SEINE-ET-OISE, FRANCE.

BOILER FOR TREATING RHEA, RAMIE, &c.

SPECIFICATION forming part of Letters Patent No. 339,332, dated April 6, 1886.

Application filed September 24, 1885. Serial No. 178,062. (No model.) Patented in France March 31, 1885.

To all whom it may concern:

Be it known that I, THÉODORE EUGÈNE SCHIEFNER, manager of Feray & Co.'s works, of Essonnes, Department of Seine-et-Oise, France, have invented a new and Improved Boiler for Treating Rhea or Ramie, Nettles, Pita, Yucca, Pine-Apples, Jute, Ananassa, Spathe, Flax, Hemp, and any Vegetable Fibers, (for which I have obtained Letters Patent of France for fifteen years, dated March 31, 1885; and I do hereby declare that the following is a full and exact description thereof.

The fibers obtained after decorticating, particularly those of the rhea or ramie or any of the others above mentioned, contain a great deal of gum, which must be removed from them in order to facilitate the subsequent operations. All the processes hitherto employed for its removal are very expensive, as they require a numerous staff and occupy a deal of time, while the results effected are far from satisfactory. By means of the new boiler, which forms the subject of the present invention, the question is solved in a very economical and rapid way, as a great part of the manual labor is avoided, with a saving in chemicals and steam. In addition, the fibers being well divided, a complete and regular scouring of the whole mass in treatment is effected.

Figure 1 of the annexed drawings shows the improved boiler in elevation. Fig. 2 is a vertical section through the axis, the basket being shown inside, the cover or lid being removed.

The two vats *a* and *b* are concentric, leaving a suitable space between them, which is filled up with lye or with any suitable chemical preparation. The outer vat, *a*, is provided with the taps *c* and *d*, for the admission and exit of the steam, which passes through the serpentine pipe *f*, immersed in the liquid and encircling the internal vat, *b*. The steam makes its exit by the tap *d*. It is conveyed to a condenser through the pipe *g*. The vat *a* is emptied by means of the tap *h*, situated at its lower part. The internal vat, *b*, which is perforated throughout its whole surface, is supported by two T-shaped iron bars, *k k'*, and supported laterally by the guides *l l'*. On its vertical axis is a vertical tube, *m*, perforated in the same manner, in order to allow the liquid to reach the very center of the fibers to be treated. The basket *n* (a kind of cage of galvanized-iron gauze) comprises five shelves, (more or less, as the case may be,) forming so many bases or bottoms o' o^2 o^3 o^4 o^5, supported by angle-iron standards or other suitable supports. A layer of the ramie fiber, from which the gum is to be extracted, is placed on each of these shelves. Inside the basket is an opening to allow of the passage of the tube of the vat *b*. At the upper part four branch supports, *p p'* p^2 p^3, are disposed, forming by their junction a ring which engages in the hook *q* of the chain *q'*, which latter passes over a removable pulley, *r*, with double shell *r'*, the other end of which bears a traveling roller, r^2. This roller moves on the cross-rail *s*, the ends of which are supported by two arms, *s' s²*, the lateral displacement of which is prevented by the flat iron pieces s^3 s^4, supported by the said arms. An arch, *t*, firmly fixed on the vat *a*, bears two guide-pulleys, *t' t²*, bearing the chain t^3, which is intended for lifting the cover *a'* by winding it up on the drum *u* with crank *u'*.

In order to avoid any explosion, the cover or lid *a'* is provided with a safety-valve, *v*, and tap *v'*, which is opened when the steam-gage v^3 indicates too great a pressure.

By the construction of the nut-screws *x* of the cover perfect tightness is secured.

The plate *x'* is bolted on the external vat, *a*. The screw x^2 pivots on an axis fixed by two ears or lugs to the T, and can be drawn down at pleasure. The nut is furnished with two arms to facilitate fastening.

Working: After having conveniently filled the basket in all its compartments with ramie or other fibers, the cover is firmly pressed in its seat, and india-rubber, red lead, or any other suitable matter is employed to make the joint tight. If then steam is admitted through the tap *c*, the lye in the vat *b* is heated, producing a sort of inflation of the layers of ramie, which allows the lye to soak throughout the mass, and causes a rapid and regular scouring of the mass, and at the same time separates the gum from the fiber. When the fiber is con-

sidered to be sufficiently scoured, the lye is discharged and a current of hot water is allowed to pass over the fibers, in order to completely free them from gum. They are then taken out after having raised the basket, and fresh fibers are put in, and the same operation is recommenced.

Having now described the construction of the apparatus forming the subject of my invention, and the manner in which it works, I claim the method herein described of separating the gum from the fibers of rhea or ramie, nettle, pita, yucca, pine-apples, jute, ananassa, spathe, flax, hemp, and any other textile fibers by a regular and rapid process of scouring. I claim, also—

1. The combination of two concentric vats, leaving between them a sufficient space to receive and fill with the requisite lye or other suitable chemical composition.

2. The arrangement of the internal perforated vat and tube, placed vertically with its axis, so as to allow the liquid to circulate freely.

3. The arrangement of a basket with several superposed compartments made of galvanized-iron wire intended for the reception of the fibers to be operated on in each compartment.

4. The arrangement of the serpentine pipe surrounding the internal vat, in order to heat the liquid mass.

THÉODORE EUGÈNE SCHIEFNER.

Witnesses:

HENRY SANFORD BERGMAN,

ALPHONSE BLÉTRY.