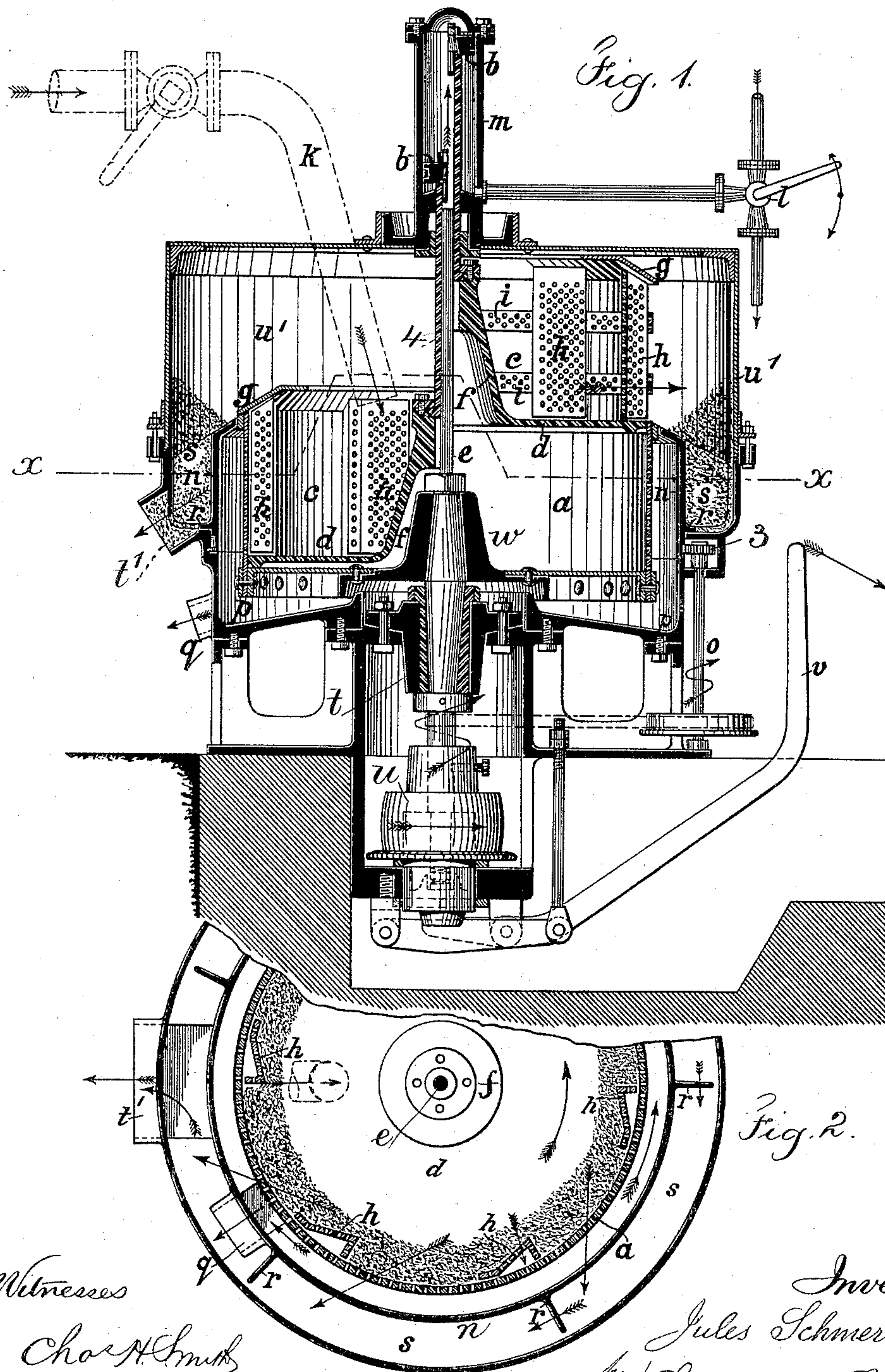


(No Model.)

J. SCHMERBER.  
CENTRIFUGAL MACHINE.

No. 493,900.

Patented Mar. 21, 1893.



Witnesses  
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# UNITED STATES PATENT OFFICE.

JULES SCHMERBER, OF EILENBURG, GERMANY.

## CENTRIFUGAL MACHINE.

SPECIFICATION forming part of Letters Patent No. 493,900, dated March 21, 1893.

Application filed September 29, 1892. Serial No. 447,240. (No model.)

*To all whom it may concern:*

Be it known that I, JULES SCHMERBER, a citizen of the United States, residing at the city of Eilenburg, in the Kingdom of Prussia, German Empire, have invented an Improvement in Centrifugal Machines, of which the following is a specification.

In connection with a centrifugal separator having a perforated cylinder through which the liquid portions are projected centrifugally, I employ an interior basket that can be raised when the apparatus is stationary or when it is revolving, and by the elevation of the basket the dry or partially dried materials within the separator are elevated and discharged over the top of the perforated cylinder or drum and received into an annular trough, and the wall which intervenes between the cylinder or drum and the annular trough is provided with scrapers and it can be revolved so as to discharge automatically the contents of the annular trough through one or more openings. In this manner the discharge of the dry or partially dried contents of the centrifugal separator is greatly facilitated and it is not necessary to stop the machine to discharge the contents.

In the annexed drawings I have represented the devices in a convenient form for carrying out my present improvement.

Figure 1 is a vertical section, which represents at the right side of the central line the basket in an elevated position and at the left side of the central line such basket is represented in its depressed position for the reception of the material to be centrifugally dried, and Fig. 2 is a partial sectional plan near the line  $x x$ .

The base of the curb is preferably formed as a conical tray  $p$  having one or more outlets at  $q$  for the discharge of the liquid that runs from the centrifugal separator, and in the center of this tray is a suitable bearing  $t$  for the central shaft or axis  $e$  of the machine, and the proper rotary motion is given by a belt to the pulley  $u$  or other convenient device, and there may be a friction or other clutch actuated by the lever  $v$  for connecting or disconnecting the pulley  $u$  and shaft  $e$  for starting or stopping the machine.

Upon the shaft  $e$  is a hub  $w$  to which is connected the bottom of the centrifugal cylinder or drum  $a$  which is of perforated material as usual in separators.

Around the shaft  $e$  and extending downwardly around the hub  $w$  is a conical hub  $f$ , to the lower edge of which is connected the bottom  $d$  of a skeleton basket fitting within the drum  $a$  and capable of being raised or lowered, and upon this bottom  $d$  are vertical scrapers  $h$ , preferably of perforated metal and these are advantageously connected by the horizontal perforated strips  $i$ , which strips are represented as separate horizontal rings, but a helically wound strip may take the place of the rings, such strip or rings being permanently connected to the vertical scrapers  $h$ , and at the top of the vertical scrapers  $h$  there is an inclined rim  $g$  permanently fastened to such scrapers and extending out over the top of the drum  $a$ .

Surrounding the perforated drum  $a$  and at a suitable distance therefrom and rising above the top edges of the tray  $p$  is a cylindrical wall  $n$  that rises as high as the top of the drum  $a$  or nearly so and is provided with an inwardly projecting conic frustum, the inner edge of which is closely contiguous to the outer edge or rim of the drum  $a$ , hence the liquid materials that are projected by the centrifugal action of the separator strike against this wall  $n$  and run down into the tray  $p$  and away by the delivery spout  $q$ .

Around outside the wall  $n$  is an annular gutter  $s$ , there being a case  $u'$  around outside the gutter, and forming an inclosure for the upper part of the machine, which case may be of any desired character; I have represented the lower portion as a casting extending outwardly from the cylindrical portion of the tray  $p$ , and the upper portion of such case is of sheet metal bolted to the lower portion. This construction, however, may be varied, and in this case are one or more delivery openings  $t'$ , and connected with the wall or cylinder  $n$  are scrapers  $r$  preferably radial, and this wall or cylinder  $n$  and its scrapers can receive a rotary or partial rotary motion, so that the material that may be delivered into the annular gutter  $s$  will be carried around



by the scrapers and fall out through the delivery opening  $t'$ , or one of such delivery openings, and for the purpose of revolving this cylindrical wall  $n$  I have represented a shaft  $o$  to be driven by a pulley and provided with a pinion 3 engaging gear teeth upon such cylindrical wall  $n$ .

The skeleton basket constructed as aforesaid may be raised or lowered by any suitable means; I however prefer to use a sliding tube 4 surrounding the upper part of the axis  $e$  and having a flange around its lower end passing into a recess at the top of the conical hub  $f$ , so that such conical hub  $f$  and basket are free to revolve with the centrifugal separator, and the tube 4 may remain stationary, and at the upper end of the tube 4 is a piston  $b$  within a cylinder  $m$  that is provided with a packing at its lower end through which passes the sliding tube 4, and the three-way cock  $l$  is provided in a pipe leading to this cylinder  $m$ , through which pipe a fluid or liquid under pressure is supplied to the cylinder  $m$  to act below the piston  $b$  and raise such piston, the tube, and the skeleton basket, and when the fluid is allowed to run out from the cylinder  $m$ , such piston  $b$  descends with the basket and the basket is returned into the centrifugal separator.

It is now to be understood that the material to be acted upon is supplied into the centrifugal separator by any suitable means, such for instance as by the pipe  $K$  and cock, and when the separator has been charged and the material submitted to the centrifugal action for the time necessary to throw off the liquid materials, which run away by the delivery chute  $q$ , the solid contents of the separator in a more or less dry condition can be raised automatically by lifting the skeleton basket and the contents are discharged into the annular gutter  $s$ , and the discharge of said material is hastened by the apparatus continuing in motion, after which the basket is lowered to place in the separator drum and a fresh charge inserted, and the contents of the annular gutter  $s$  are discharged by giving to the cylindrical wall  $n$  a rotary motion by the shaft  $o$  and pinion 3 as aforesaid.

It will be understood that the case  $w'$  should extend sufficiently high for retaining any substances passing out of the skeleton basket, and that such substances fall into the annular

trough or gutter  $s$  and are delivered by the slow movement given to the cylindrical wall  $n$  and scrapers  $h$ .

I claim as my invention—

1. The combination with the centrifugal separator having a perforated revolving drum, of a skeleton basket within the drum composed of the conical hub  $f$ , and bottom  $d$ , vertical scrapers  $h$ , the connecting strips  $i$ , and an inclined rim  $s$ , connected to the upper end of the scrapers and extending out over the top of the said drum, and means for elevating said basket, substantially as specified.

2. The combination with the centrifugal separator having a perforated revolving drum, of a circular outer casing a wall  $n$  between said drum and casing, scrapers  $r$  upon the outer face of the wall and within the gutter between the wall and casing, and means for revolving said wall and scrapers, a skeleton basket  $c$  within the drum and rotating therewith and means for elevating said basket to discharge its contents over the said wall into the gutter, substantially as set forth.

3. The combination with a centrifugal separator having a perforated revolving drum, of a skeleton basket within the drum, a tube connected with the basket and surrounding the axis of the centrifugal separator, a cylinder and piston and means for admitting a fluid under pressure to act upon the sliding tube and piston to elevate the skeleton basket, substantially as set forth.

4. The combination with the centrifugal separator having a perforated revolving drum, of a skeleton basket within the drum, a tube connected with the basket and surrounding the axis of the centrifugal separator, a cylinder and piston and means for admitting a fluid under pressure to act upon the sliding tube and piston to elevate the skeleton basket, the cylindrical wall  $n$  and scrapers and mechanism for revolving the same, and a case outside of the cylindrical wall forming an annular gutter, and a discharge opening from the same, 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.

JULES SCHMERBER.

Witnesses:

CARL BORNGRAEBER,  
FRIEDRICH KARBAUM.