

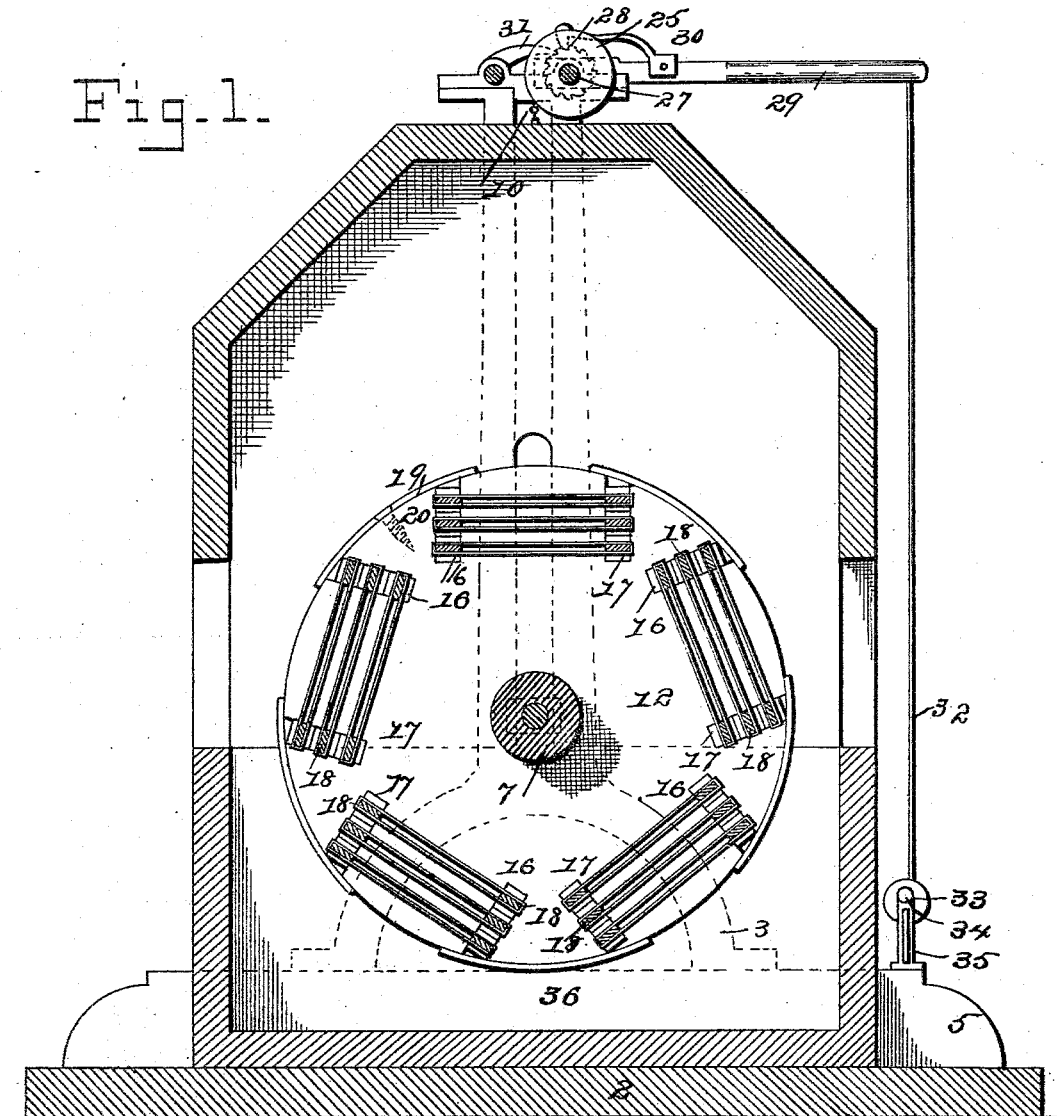
W. T. BOOTH.

APPARATUS FOR TREATING SKEIN YARN.

No. 301,555.

Patented July 8, 1884.

Fig. 1.



WITNESSES

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Fig-2.

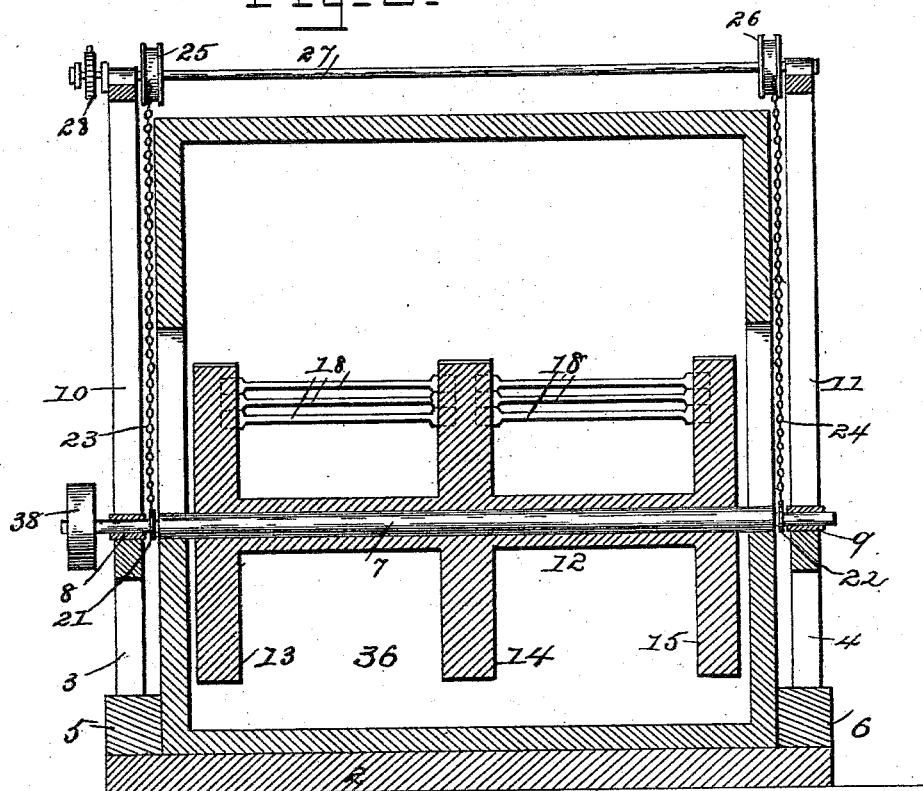
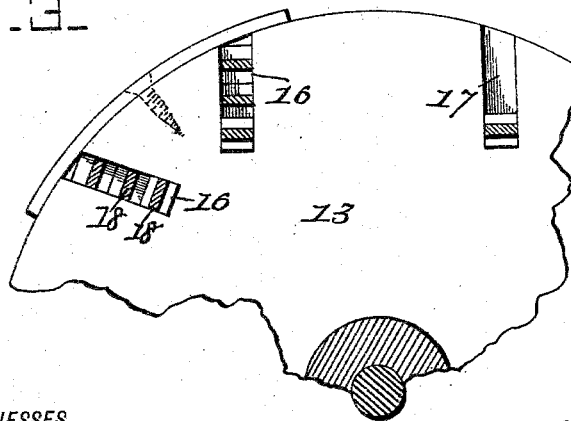


Fig-3.



WITNESSES

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UNITED STATES PATENT OFFICE

WILLIAM T. BOOTH, OF MANCHESTER, NEW HAMPSHIRE.

APPARATUS FOR TREATING SKEIN-YARN.

SPECIFICATION forming part of Letters Patent No. 301,555, dated July 8, 1884.

Application filed January 16, 1884. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM T. BOOTH, a citizen of the United States, residing at Manchester, in the county of Hillsborough and State of New Hampshire, have invented certain new and useful Improvements in Apparatus for Treating Skein-Yarn, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention has relation to devices for dyeing, washing, and extracting or drying skein-yarn; and the object of the invention is to produce a simple, inexpensive, and efficient machine whereby the yarn may be rapidly dyed, washed, and dried in a simple manner and practically at a single operation; and the novelty consists in the construction of the same, as will be hereinafter more fully described, and particularly pointed out in the claims.

In the accompanying drawings similar letters of reference indicate the same parts of the invention.

Figure 1 is a sectional end elevation of my improved yarn-dyeing machine. Fig. 2 is a longitudinal side elevation, partly in section; and Fig. 3, a detail of the reel, showing the manner of holding the yarn-sticks in place.

2 is the base, and is provided with standards 3 4, secured to the end sills, 5 and 6.

7 is the main shaft, journaled in boxes 8 and 9, having vertical motion in the slots 10 11 in the standards 3 4. This shaft 7 is provided with a reel, 12, having flanges or disks 13 14 15, in the peripheries of which are a series of pairs of parallel tangential slots, 16 17, in which are secured the yarn-sticks 18 by means of the clamp-plate 19, held in place by the screw 20.

21 and 22 are loose collars on the shaft 7, and they are provided with cords or chains 23 24, which are connected to the grooved pulleys 25 26, secured upon the shaft 27, journaled in the upper ends of the standards 3 4. From this construction it will be seen that the reel 12 and main shaft 7 may be rotated, and while in motion may be raised or lowered by means of the shaft 27. One end of the shaft 27 has rigidly secured thereto a ratchet-wheel, 28, and journaled to the shaft is a lever, 29, provided with a pawl, 30, so that as the lever is

operated the shaft 27 will be turned, and the reel 12 raised or lowered at will.

31 is a retaining-pawl, mounted in the top of the standard 3, which engages with the ratchet-wheel 28, so as to retain the shaft 7 in a raised or lowered position, as may be desired.

To the outer end of the lever 29 is secured a pitman, 32, the lower end of which is attached to an eccentric, 33, on the counter-shaft 34, mounted in the standard 35, and if the retaining-pawl 31 is thrown out of contact with the ratchet-wheel 28 and the shafts 7 and 34 set in motion, the reel will have a rotary motion on its own axis and an up-and-down motion through the medium of the eccentric and the lever and ratchet, and this combined motion gives a waving effect to the periphery of the reel.

36 is the tank for containing the dye or washing-liquid, and 37 is the cover or casing of the machine proper.

In operation the skeins of yarn are placed on the sticks 18, which are properly secured in the slots in the reel, which is then lowered into the box or tank 36, in which the dye-liquid has been previously prepared. The connecting-rod or pitman 32 is then connected to the eccentric 33, the retaining-pawl 31 thrown out of contact with the ratchet, and the counter-shaft 34 set in motion and the main shaft started by means of a belt on the pulley 38, and the speed so regulated as to revolve the reel slowly in the dye-liquid. While this is going on the eccentric imparts an "up-and-down" motion to the reel, which thoroughly agitates the yarn in the liquid, so that it is perfectly impregnated with the dye. After the yarn has been in the dye a sufficient length of time to attain the depth of shade required, the liquid is drawn off and the tank filled with clear or clean water. The speed of the yarn-reel is now increased, so as to accelerate the washing of the yarn. After this is thoroughly done the motion is stopped and the pitman detached from the eccentric and the retaining-pawl restored to position in contact with the ratchet-wheel, and by means of the lever 29 the reel is raised into the upper space of the cover 37, where, of course, it is entirely clear of the tank 36. A very quick speed is

now applied to the pulley 38, which extracts
by centrifugal force the liquid from the yarn,
leaving it in a nearly dry state, so that it may
be thoroughly dried, by heat or otherwise, in
5 a very short time.

From the above description it will be seen
that the whole process of dyeing, cleaning, or
washing and practically drying the yarn is
accomplished in a short space of time and in a
10 very simple and effective manner, and at al-
most a single operation, and its many advan-
tages over the old methods will be fully un-
derstood and appreciated by those familiar
with the art.

15 Having thus described my invention, what
I claim as new and useful, and desire to se-
cure by Letters Patent of the United States,
is—

1. The reel 12, provided with means for

raising and lowering the same, and adapted 20
to be rotated in or out of the dye-liquid, as
set forth.

2. The combination, with the main shaft 7,
having reel 12, boxes 8 9, and pulley 38, of
the standards 3 4, having slots 10 11, shaft 27, 25
and retaining-pawl 31, and chains 23 and 24,
as and for the purpose set forth.

3. The combination, with the standards and
reel, of the shaft 27, chains 23 24, ratchet 28,
ratchet-lever 29, rod 32, and eccentric 33, as 30
and for the purpose set forth.

In testimony whereof I affix my signature
in presence of two witnesses.

WILLIAM T. BOOTH.

Witnesses:

FRANK C. TWOMBLY,
DAVID F. CLARK.