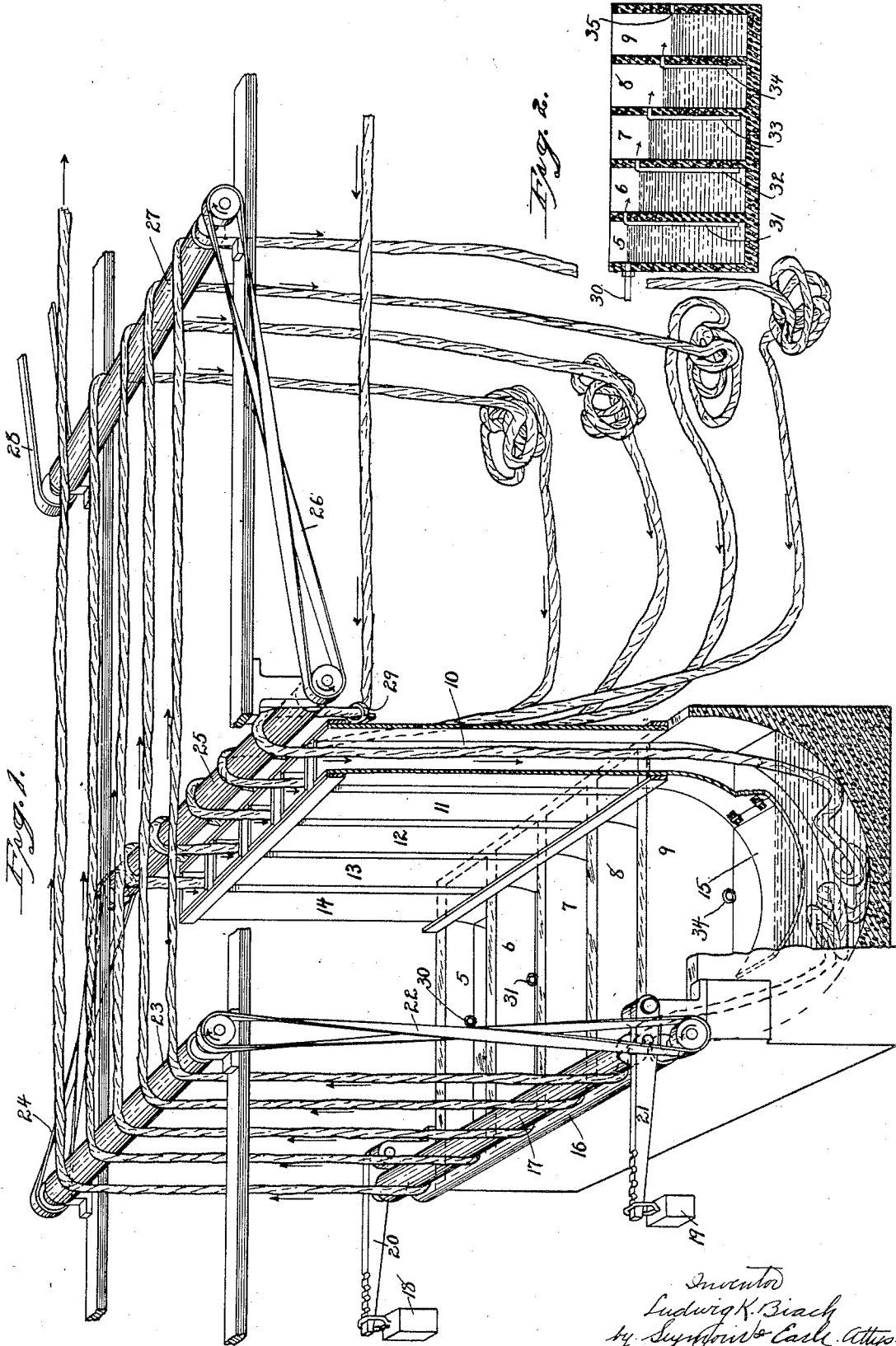


L. K. BIACH.
BLEACHING APPARATUS.
APPLICATION FILED SEPT. 7, 1920.

1,363,223.

Patented Dec. 28, 1920.



Inventor
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by Seymour & Castle, Attys.

UNITED STATES PATENT OFFICE.

LUDWIG K. BIACH, OF NEW HAVEN, CONNECTICUT.

BLEACHING APPARATUS.

1,363,223.

Specification of Letters Patent.

Patented Dec. 28, 1920.

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To all whom it may concern:

Be it known that I, LUDWIG K. BIACH, a citizen of the United States, residing in New Haven, in the county of New Haven and State of Connecticut, have invented a new and useful Improvement in Bleaching Apparatus; and I do hereby declare the following, when taken in connection with the accompanying drawings and the characters of reference marked thereon, to be a full, clear, and exact description of the same, and which said drawings constitute part of this application, and represent, in—

Figure 1, a broken perspective view of a bleaching apparatus, constructed in accordance with my invention.

Fig. 2, a longitudinal sectional view of the tanks, on a reduced scale.

This invention relates to an improvement in bleaching apparatus of the type in which material in long strips is repeatedly submerged in a bleaching solution. The object of this invention is to provide an apparatus through which a strip of material coming from the washing machine is submerged in a tank of bleaching solution, wrung out and aired, and these steps repeated in a continuous operation without intermediate handling of the material, and the invention consists in the construction and arrangement of parts as hereinafter described and particularly recited in the claims.

In carrying out my invention I employ a series of tanks 5, 6, 7, 8, and 9, formed integral, of concrete or other suitable material. The number of compartments may be varied. Mounted upon the rear wall, are a series of vertically arranged chutes 10, 11, 12, 13, and 14, one over each of the tanks, into which the front walls of the chutes extend in a downward curve, substantially parallel with the bottom of the tanks, and to the lower end of each wall is hinged a guide 15 adapted to be detachably connected to the side walls of the tank, so as to form continuations of the chutes. Mounted on the front wall of the tanks is a pair of wringer rolls 16 and 17. The upper roll 17 is forced against the lower roll 16 by weights 18 and 19 suspended on arms 20 and 21 in which the roll 17 is mounted. The lower roll is driven by a belt 22 from a roll 23 above the wringer rolls, and the roll 23 is driven by a belt 24 from a feed roll 25, above the chutes, which is driven by a

belt 26 from a driving roll 27 which may be driven by a belt 28 from any suitable source of power. Adjacent to the feed roll 25 are a series of eyes 29 through which the material to be treated passes and whereby a bight is secured on the feed roll 25 so that the material will be moved. The tank 5 at the outer end is filled with a bleaching solution which is admitted through a pipe 30 near the top. Between the tank 6 is a pipe 31 which extends from the bottom of the tank 5 and discharges into the top of the tank 6. From the bottom of the tank 6 is a pipe 32 discharging into the tank 7; from the bottom of the tank 7 is a pipe 33 discharging into the tank 8, and from the bottom of the tank 8 is a pipe 34 discharging into the tank 9 which is provided with an outlet passage 35. The tanks are thus kept filled with the bleaching solution, although at gradually reduced depths, and as the outlets are from the bottom, any sediment will be drawn off so that they tend to clear themselves. A strip of cloth to be bleached coming from the washing apparatus is rope link in form and is passed through an eye 29 adjacent to the feed roll 25 and at the rear of the chute 10 into which it is drawn by the movement of the feed roll 25. The strip is allowed to pile in the tank 9 from which it is drawn by the wringer rolls from which it passes upward over the roll 23 rearward over the driver roll 27 from which it descends into a pile 36 from which it is again drawn over the feed roll 25 into the chute 11 from which it passes into the tank 8, and this course is continued until the strip emerges from the last tank 5 from which it passes to suitable washers and driers, not shown. It will be seen as the strip progresses in its passage through the tanks, the solution will increase in strength and cleanliness, and that between each submersion the material is exposed to the air which tends to assist in the bleaching operation, and after the forward end of the strip has passed through the apparatus the action is automatic.

In passing cotton cloth through bleaching liquor consisting of solutions of either calcium hypochlorite or of sodium hypochlorite in water these bleaching compounds are decomposed into chlorid of lime and oxygen or common salt and oxygen. The solutions of common salt or lime being heavier

than water in specific gravity, go to the bottom of each compartment. The inflow of the fresh liquor communicating from the bottom to the top of the next compartment prevents the accumulation of the heavier liquor on the bottom of each compartment, thus insuring an even mixture of fresh and decomposed bleaching liquor, and only by these means of keeping the bleaching solutions at a certain strength the uniformity of the bleaching process is made possible.

Owing to the fact that the material is repeatedly submerged into the bleaching solution and aired between submersions, I am enabled to obtain the desired result with a weaker solution than is generally required, thus avoiding any possibility of damaging the goods, and the time required to obtain the desired results is shortened.

I claim:—

1. In a bleaching apparatus, the combination with a series of tanks provided with passages opening from the bottom of one tank into the top of the next tank, of means for feeding a strip of material into one tank, means for wringing the strip as it emerges from the tank, and a series of rolls

over which the material passes to the next tank.

2. In a bleaching apparatus the combination with a series of tanks provided with means for maintaining a predetermined level of bleaching solution, of chutes opening into the said tanks, wringer rolls opposite said chutes, a feed roll adapted to pass a strip of material into the said chutes and airing rolls between the wringer rolls and feed roll.

3. In a bleaching apparatus the combination with a series of tanks provided with means for maintaining a predetermined level of bleaching solution, of chutes opening into the said tanks, the lower ends of front walls of the said chutes curved and extended into the said tanks and provided with hinged guides.

In testimony whereof, I have signed this specification in the presence of two subscribing witnesses.

LUDWIG K. BIACH.

Witnesses:

GRACE A. FOOTE,
J. HAROLD FLYNN.