

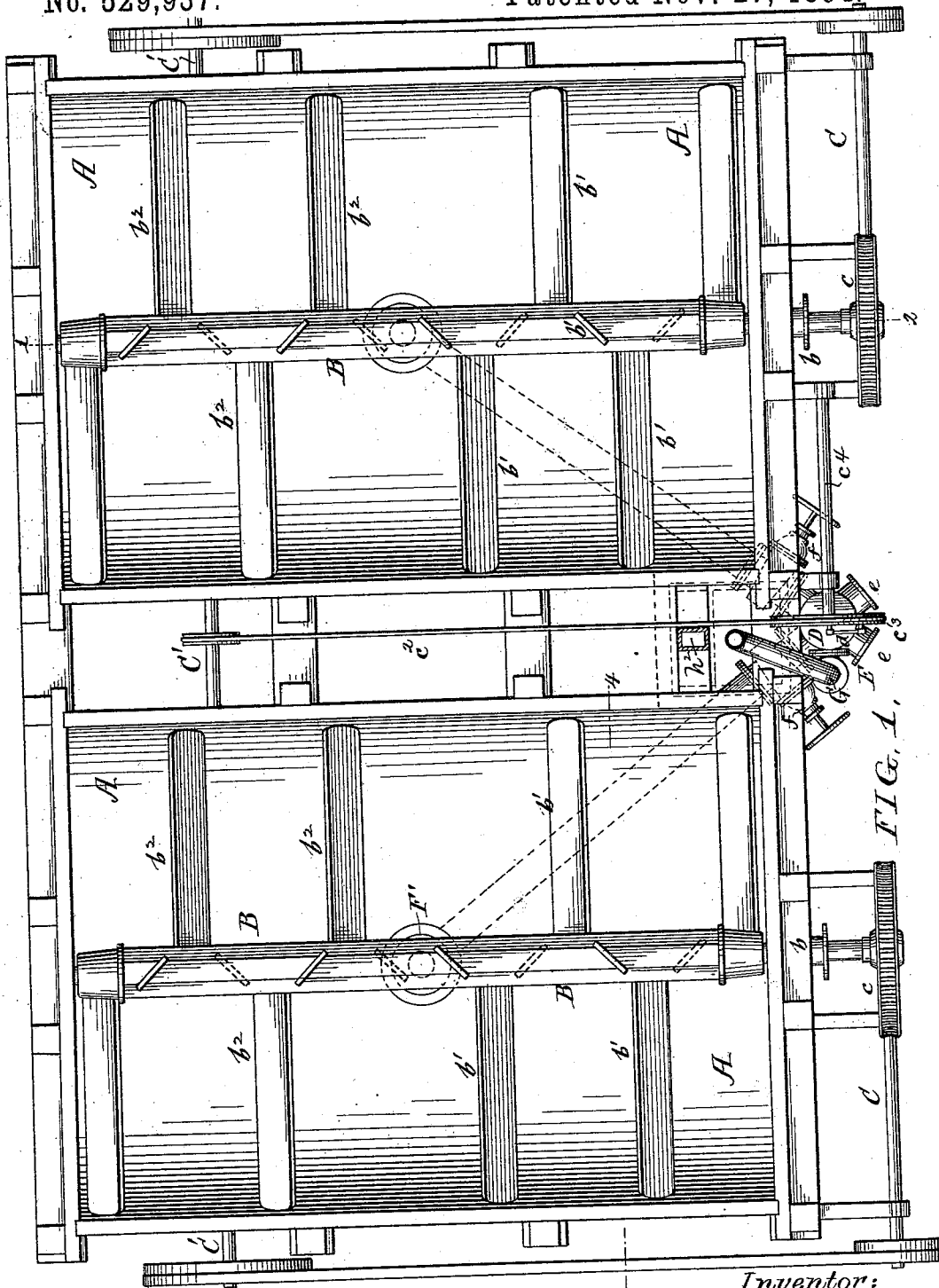
(No Model.)

3 Sheets—Sheet 1.

G. M. NEWHALL.  
STUFF CHEST AND BLEACHER.

No. 529,937.

Patented Nov. 27, 1894.



Witnesses:  
Hamilton D. Turner  
J. D. Goodwin

Inventor:  
George M. Newhall  
by his Attorneys  
Howson & Howson

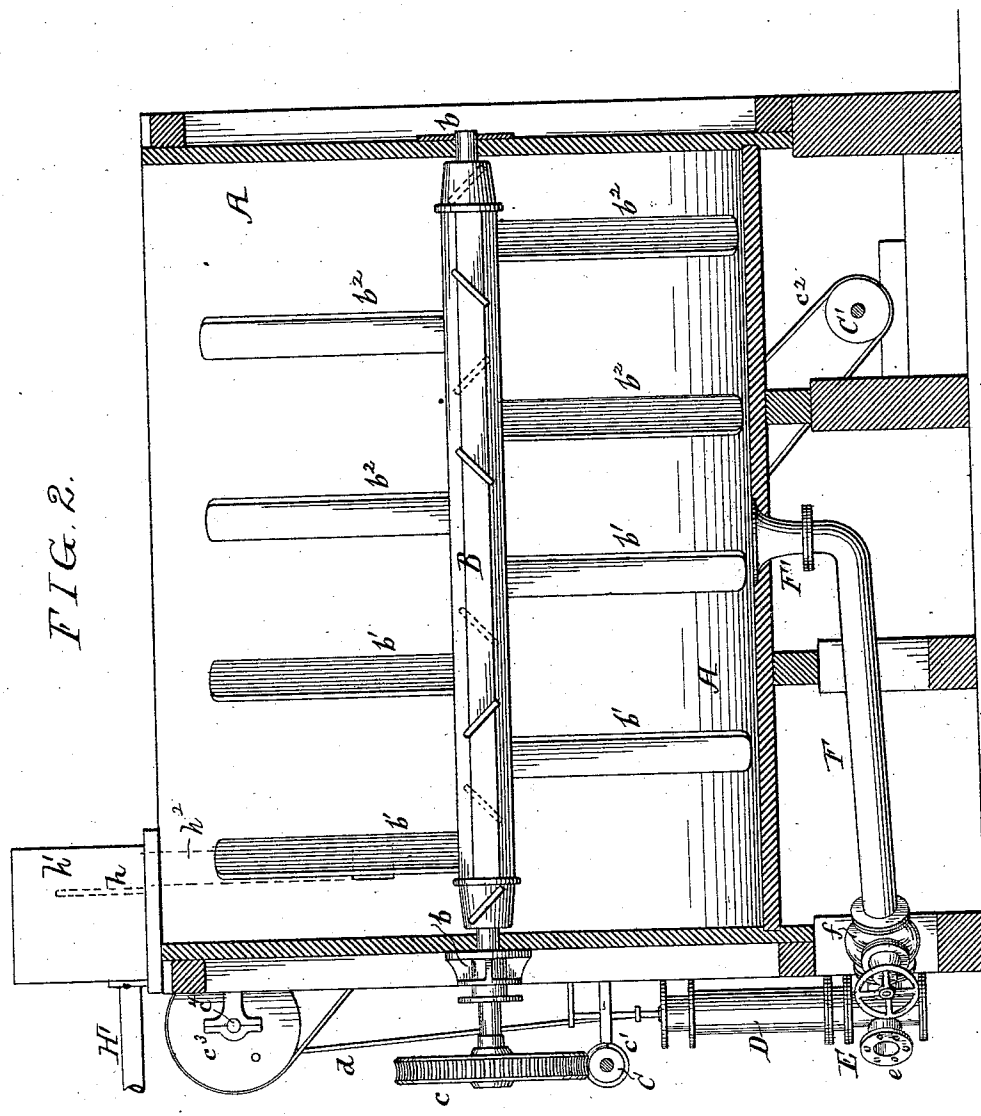
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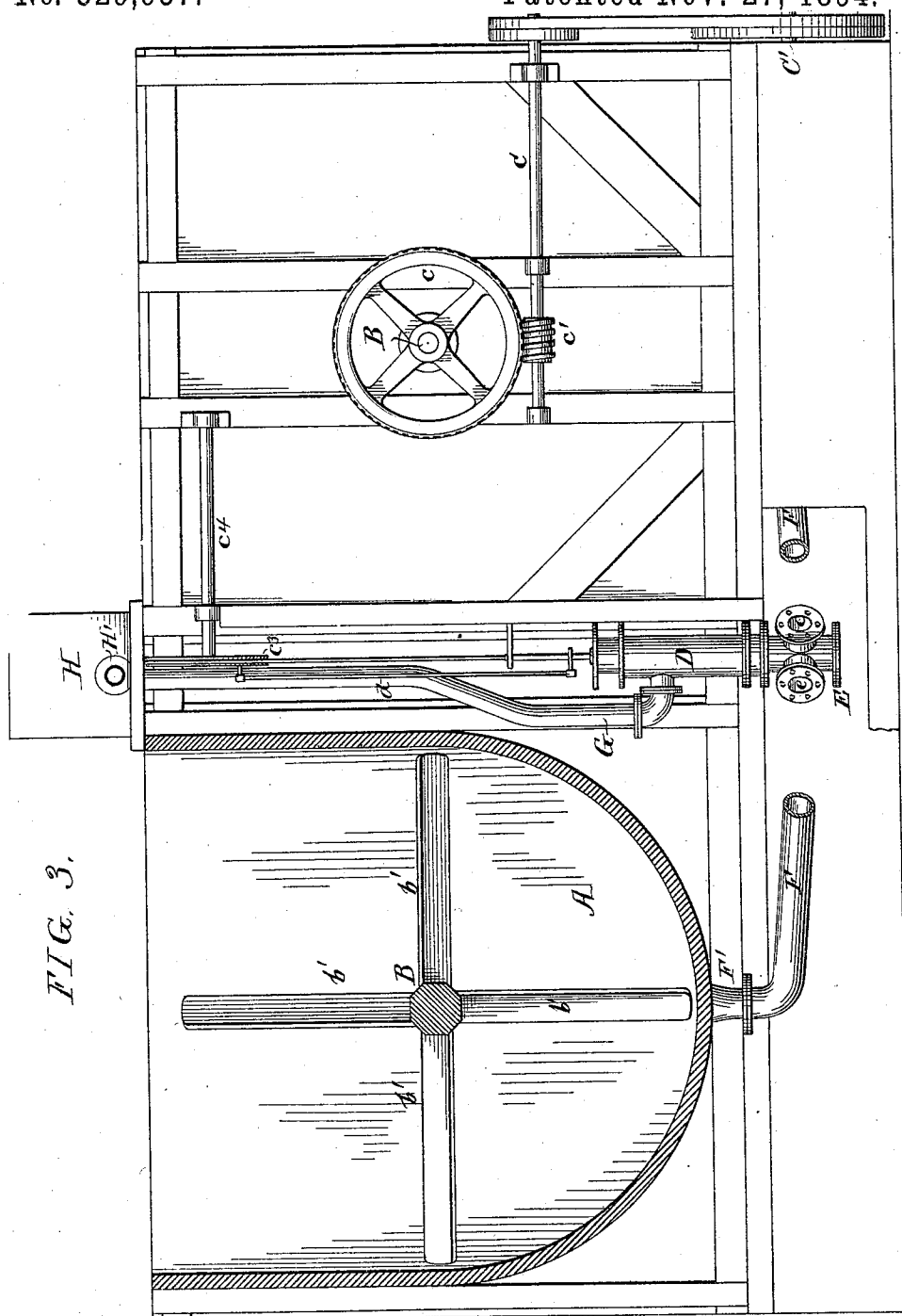
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P. D. Goodwin

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# UNITED STATES PATENT OFFICE.

GEORGE M. NEWHALL, OF PHILADELPHIA, PENNSYLVANIA.

## STUFF-CHEST AND BLEACHER.

SPECIFICATION forming part of Letters Patent No. 529,937, dated November 27, 1894.

Application filed November 6, 1893. Serial No. 490,140. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE M. NEWHALL, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Stuff-Chests and Bleachers, of which the following is a specification.

My invention relates to certain improvements in stuff chests and bleachers used in the manufacture of paper.

The object of my invention is to thoroughly mix and stir the pulp under treatment in such a manner that perfect work is insured and that the pulp is thoroughly mixed as well as circulated.

The apparatus is so constructed that coloring matter or bleach can be added at any point and will be quickly distributed through the entire mass of pulp.

In the accompanying drawings:—Figure 1, is a plan view of my improved stuff chest and bleacher. Fig. 2, is a longitudinal sectional view on the line 1—2, Fig. 1. Fig. 3, is an end view partly in section, the section being on the line 3—4, Fig. 1.

The apparatus is made in two sections in the present instance, and each section has a chest A provided with a semicircular bottom and adapted to revolve in each chest is a shaft B extending the length of the chest and mounted in bearings *b b* on the casing. This shaft has blades *b'* and *b''*, the blade *b'* being inclined in one direction, while the blades *b''* are inclined in the opposite direction. The blades are so inclined that the material being treated will be fed from the ends of the chest toward the center. The arms are extended so as to sweep close to the lower half of the chest so that all the material in the chest will circulate. The shafts can be driven by any suitable mechanism, and I have shown in the drawings a worm wheel *c* mounted on the spindle of the shaft, meshing with a worm *c'*, on a driving shaft C. This shaft is belted to the main shaft C'.

D is a pump, the piston of which is driven from the main shaft C' by a belt *c''*, which passes over a wheel *c'''* on a shaft *c''''*. This wheel has a crank pin to which is attached the connecting rod *d*. The pump is mounted on an outlet head E having four openings *e*. In the present instance, two of these openings are

capped, while the other two are attached to the pipes F extending to a central outlet F' of each chest, as shown in Fig. 2. A valve *f* in each pipe F regulates the flow of material to the pump. On removing the caps from the two openings *e* the outlet pipes can be cleaned. The material from the pump passes up the pipe G into a receiving box H above the chests and from there the material either runs back into the chests to circulate there-through, or it can be conveyed to a "Jordan" or other engine.

In order that a uniform hydrostatic pressure may be maintained in the discharge pipe H', I mount within the box H a partition *h* forming an overflow compartment *h'* which communicates with the chests A through passages *h''* so that as the material is pumped up into the box a certain percentage will overflow into the compartment *h'* so that the material in the box will remain at a given height.

The discharge openings F' for the chests A in some instances may be at one or both ends of each chest but I prefer the central opening, as the material will be more readily mixed at the center than at the ends and some of the material can be drawn off before the entire mass is thoroughly mixed.

By arranging the blades as shown the material from each end of the chest will be quickly mixed and coloring matter placed in the chest at one end will be thoroughly disseminated throughout the entire mass.

I claim as my invention—

1. The combination of the chest, the shaft therein, blades on said shaft, the blades on one end of said shaft being inclined in one direction and the blades on the other end of the shaft being inclined in the opposite direction so as to carry the material from the ends of the chest toward the center, a discharge pipe communicating with the bottom of the chest, a pump, a receiving box above the chest, a partition in said receiving box to keep the pulp therein at the proper level, said receiving box having a discharge pipe and an overflow return to the chest, substantially as described.

2. The combination of the two chests situated side by side, a horizontal shaft in each chest, blades on each shaft, the blades on one end of each shaft being inclined in one di-

rection, the blades on the other end of each shaft being inclined in the opposite direction, central discharge opening in each chest, discharge pipes, a pump and a receiving box  
5 mounted above the chest and communicating with the pump, substantially as described.

In testimony whereof I have signed my

name to this specification in the presence of two subscribing witnesses.

GEORGE M. NEWHALL.

Witnesses:

WILLIAM A. BARR,

JOSEPH H. KLEIN.