

(No Model.)

2 Sheets—Sheet 1.

C. L. HAMILTON.
MACHINE FOR BREAKING UP STRINGS OR BALLS OF PAPER STOCK.
No. 527,281.

Patented Oct. 9, 1894.

FIG 1

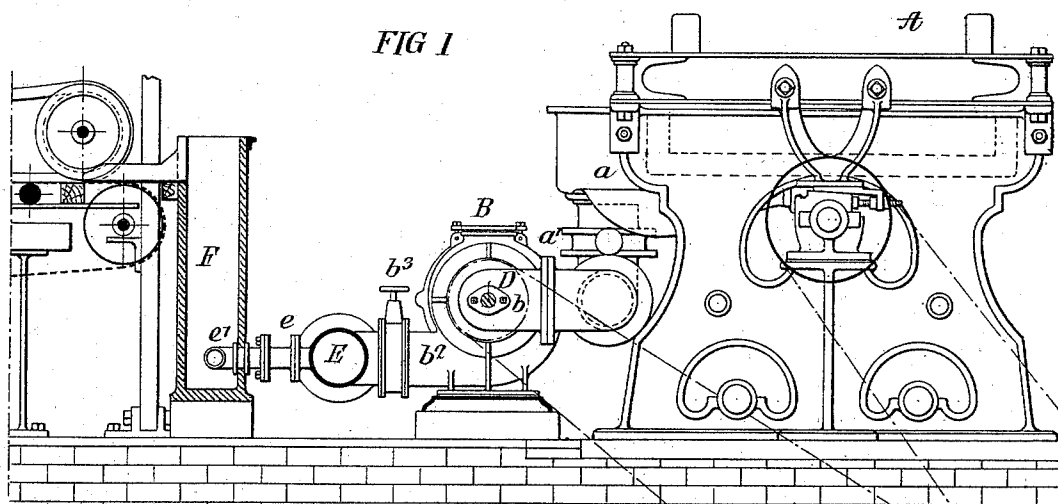
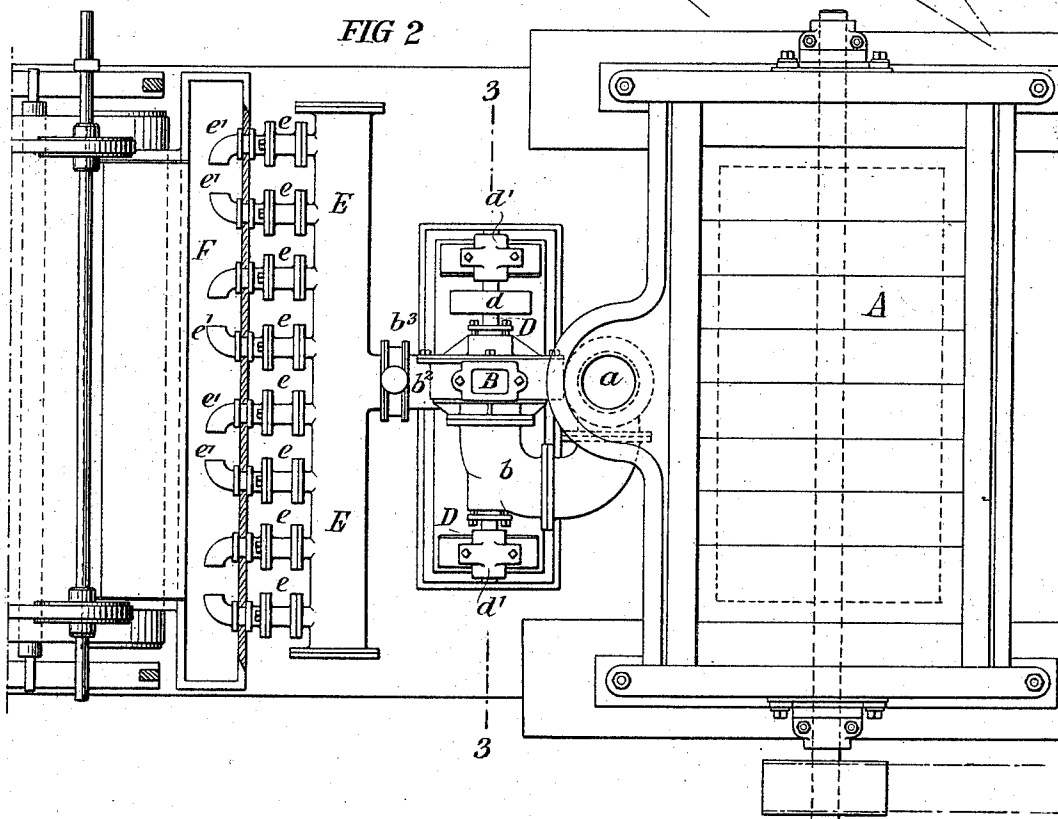


FIG 2



WITNESSES

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INVENTOR

Charles L. Hamilton
By his Attorneys
Howson & Howson

(No Model.)

2 Sheets—Sheet 2.

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FIG 3

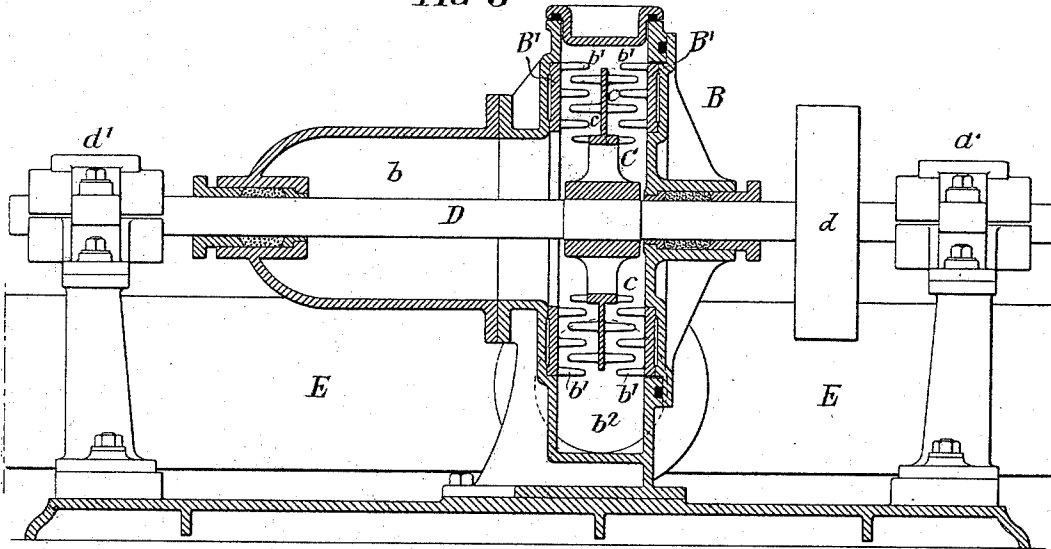


FIG 5

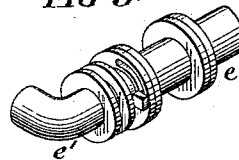
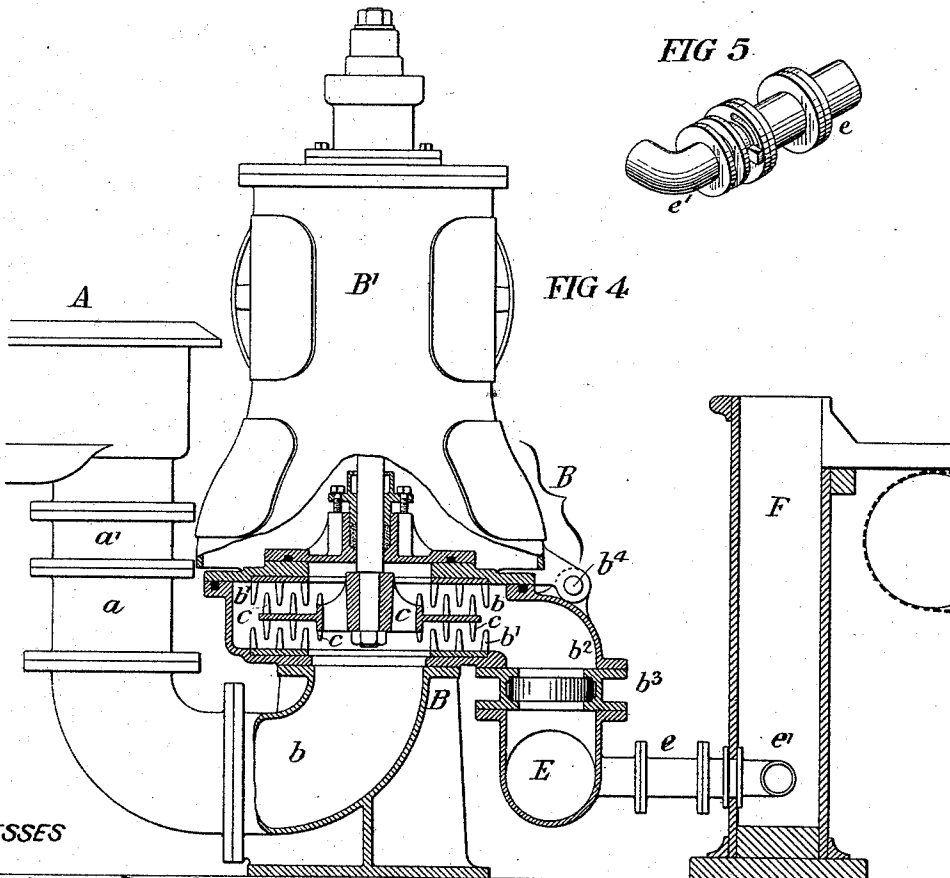


FIG 4



WITNESSES

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UNITED STATES PATENT OFFICE.

CHARLES L. HAMILTON, OF PHILADELPHIA, PENNSYLVANIA.

MACHINE FOR BREAKING UP STRINGS OR BALLS OF PAPER-STOCK.

SPECIFICATION forming part of Letters Patent No. 527,281, dated October 9, 1894.

Application filed March 5, 1894. Serial No. 502,416. (No model.)

To all whom it may concern:

Be it known that I, CHARLES L. HAMILTON, a citizen of the United States, residing in Philadelphia, Pennsylvania, have invented certain Improvements in Machines for Breaking Up Strings or Balls of Paper-Stock, of which the following is a specification.

The object of my invention is to construct a machine for breaking up the strings or balls of paper stock that form under the screen during the process of manufacturing paper and which will, if not removed, be carried to the mixing box and form lumps or blotches in the manufactured paper. This object I attain in the following manner, reference being had to the accompanying drawings, in which—

Figure 1, is a side view illustrating my invention. Fig. 2, is a plan view. Fig. 3, is a section on the line 3—3, Fig. 2. Fig. 4, is a view illustrating a modification of my invention. Fig. 5, is a detail view of one of the nozzles.

A is a screen of the ordinary type and the pulp from this screen passes through the discharge pipe *a* into the passage *b* communicating with a breaker B. In the pipe A is a valve *a'* for regulating the supply of pulp to the breaker and to prevent entrance of air and thereby prevent foaming of the pulp in the breaker. The breaker B has an inlet passage *b* and an outlet passage *b²* and secured to the casing of the breaker in the present instance are annular plates B', one on each side having pins *b'* which project into the pulp chamber.

D is a shaft extending through the casing and on this shaft is secured a disk C having teeth *c* projecting on each side. These teeth extend into the spaces between the teeth *b'* of the fixed plates so that the pulp will be thoroughly broken up in its passage through the breaker. On the shaft D is a belt pulley *d*, the shaft being mounted in suitable bearings *d'*.

The outlet passage *b²* from the breaker is coupled to a manifold discharge pipe E, which extends preferably the full length of the mixing box F and in close proximity thereto. A valve *b³* regulates the flow of pulp from the breaker to the manifold E. A series of pipes *e* extend from the manifold into the mixing

box F at the base thereof and the nozzle *e'* of each pipe is arranged at right angles to the pipe and adjustable so that it can be turned at any angle desired. I preferably arrange the pipes in pairs and turn the nozzles of each pair toward each other, as shown in Fig. 2, so that the pulp as it is discharged from the nozzles will be thoroughly mixed and agitated without undue foaming in the mixing box so that when the pulp rises to the top it will flow evenly on the top of the paper making machine. By adjusting the nozzles at different angles the stock can be more or less agitated.

It will be noticed that the breaker B is below the level of the pulp in the screen and the mixing box so that the breaker will always contain a charge of pulp.

Fig. 4, illustrates a breaker having a vertical shaft and the inlet pipe is arranged to feed the material into the bottom of the breaker, the discharge pipe being at one side.

The upper portion B' of the breaker is pivoted at *b⁴* so that it can be swung to one side to clean or repair the blades.

It will be seen by the above described mechanism that pulp having strings or balls will be thoroughly broken up and will be carried to the mixing box without undue foaming therein and yet be thoroughly agitated so that when the pulp is floated to make the sheet of paper it will be perfectly even and form paper of the first grade.

I claim as my invention—

1. The combination of the screen, the mixing box, a breaker situated between the screen and mixing box, with a manifold connected to the breaker and communicating with the mixing box at several points, substantially as described.

2. The combination of the screen, the mixing box, a breaker situated between the screen and mixing box, a manifold connected to the breaker, with pipes extending into the mixing box and adjustable nozzles on said pipes, substantially as described.

3. The combination of the screen, a mixing box, the breaker between the screen and mixing box, the manifold E communicating with the breaker having a series of pipes communicating with the mixing box, the nozzles of the pipes being arranged in pairs, the

nozzles of each pair being turned toward each other within the mixing box, substantially as described.

4. The combination of the screen, discharge
5 pipe therefor, a valve in said discharge pipe,
a breaker cylinder having blades, a driven
shaft, a disk on said shaft also having blades,
a discharge pipe for the breaker, a valve there-
in, a manifold communicating with the dis-
10 charge pipe, a series of pipes extending from

said manifold and entering the mixing box,
and nozzles on said pipes, substantially as
described.

In testimony whereof I have signed my
name to this specification in the presence of 15
two subscribing witnesses.

CHARLES L. HAMILTON.

Witnesses:

WILLIAM H. BARR,

HENRY HOWSON.