

(No Model.)

2 Sheets—Sheet 1.

M. SEMBRITZKI.
PAPER MAKING APPARATUS.

No. 288,125.

Patented Nov. 6, 1883.

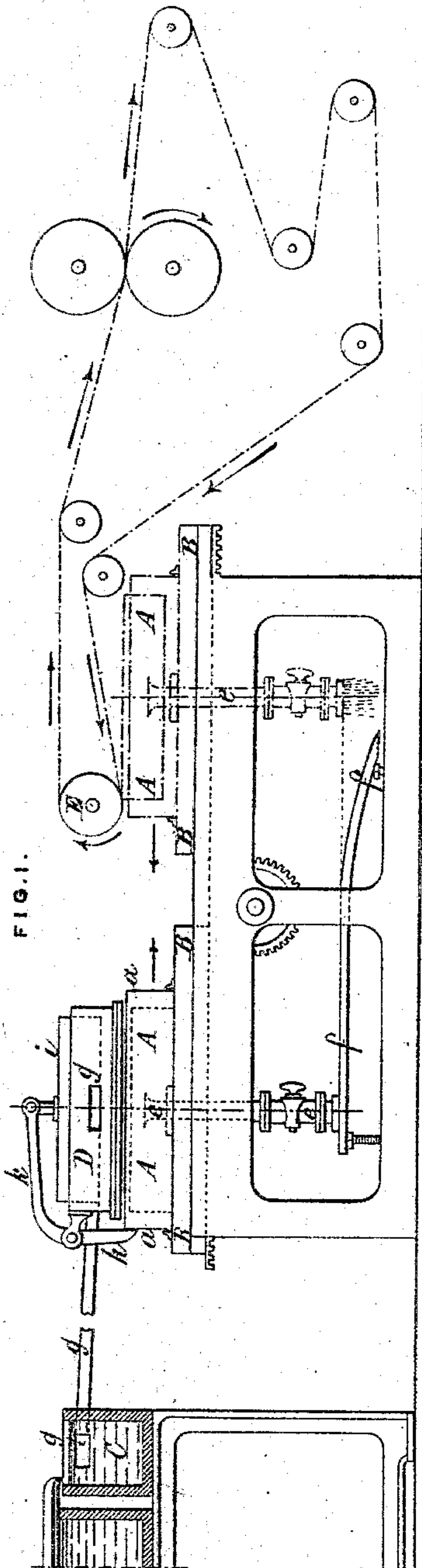


FIG. 1.

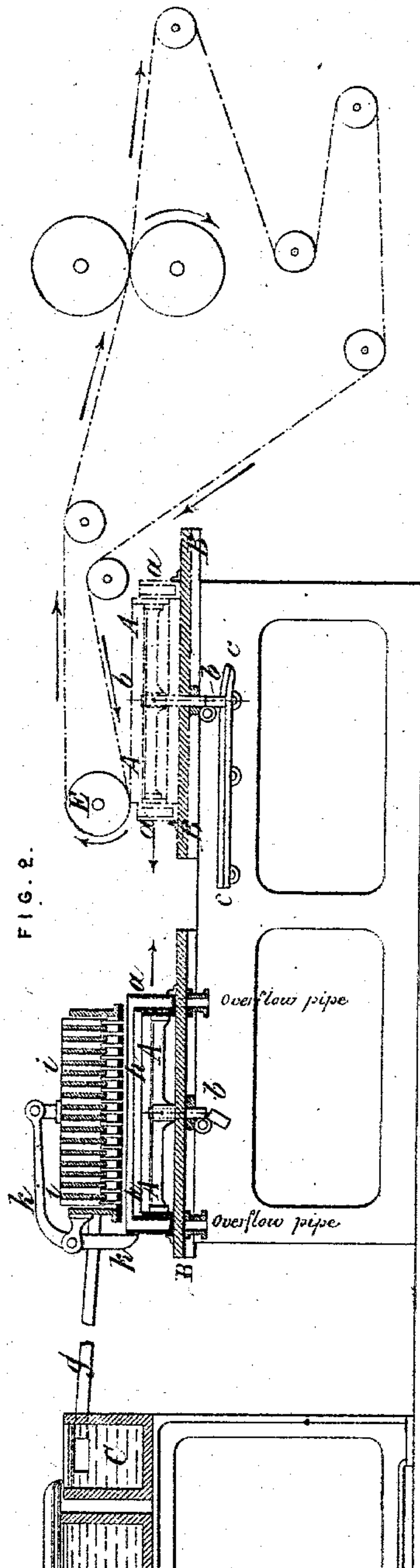


FIG. 2.

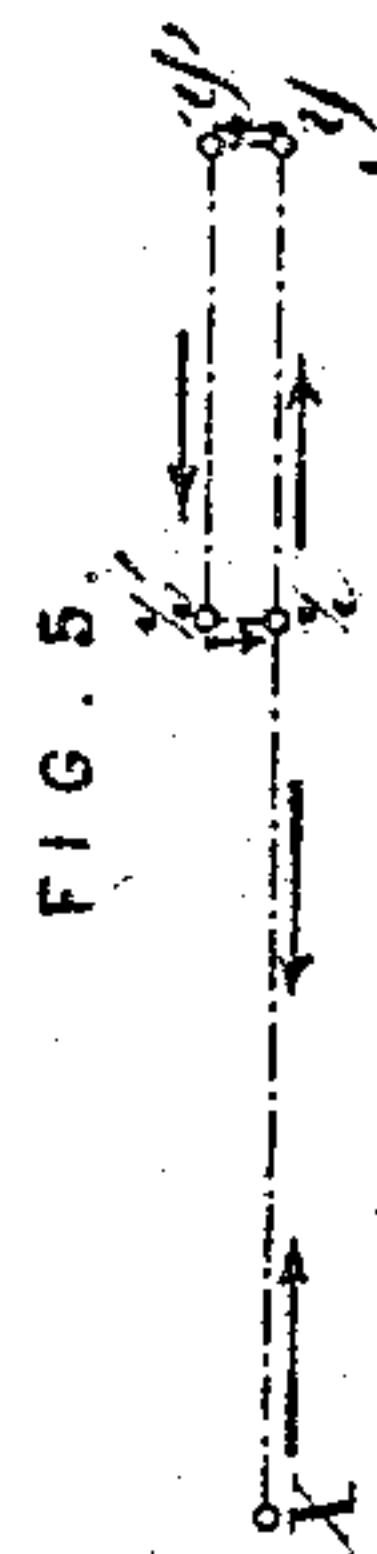


FIG. 3.

Witnesses
John C. Timbridge.
John M. Spear

Inventor.
Max Sembritzki
by his attorneys
Briesen & Steele

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2 Sheets—Sheet 2.

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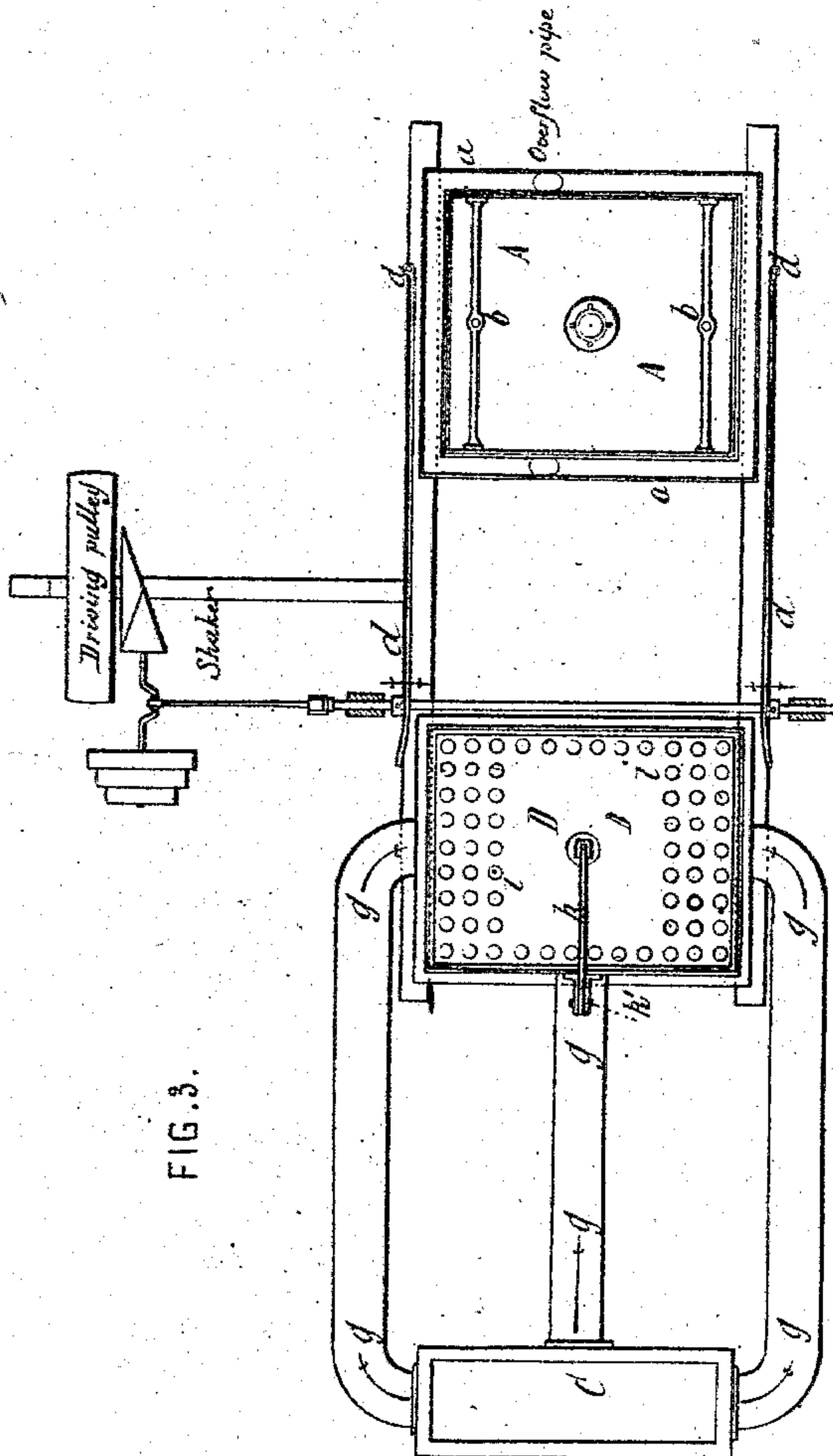


FIG. 3.

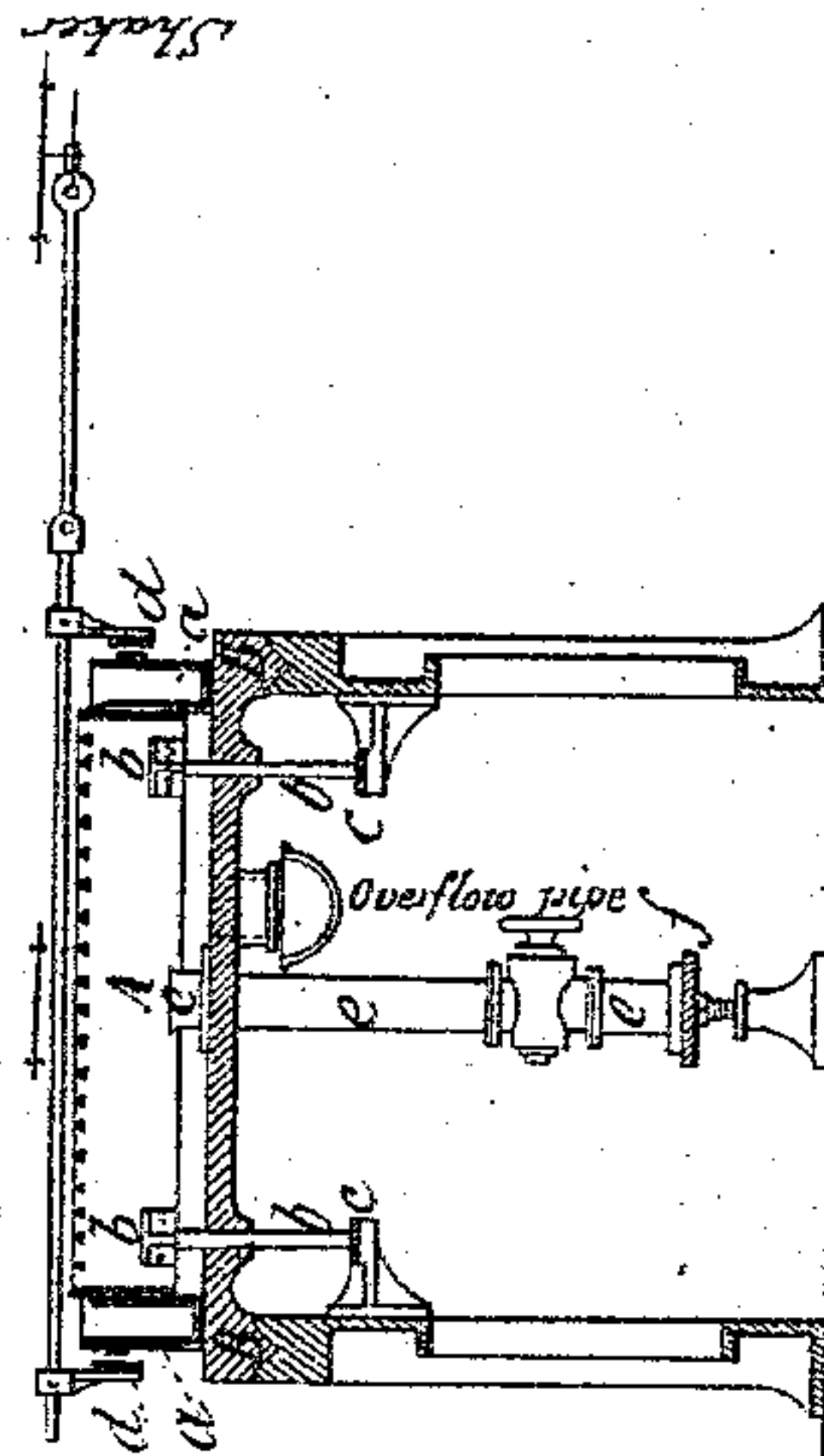


FIG. 4.

Witnesses
John C. Tunbridge
John M. Speer.

Inventor
Max Sembritzki
by his attorney
Briesen & Steel

UNITED STATES PATENT OFFICE.

MAX SEMBRITZKI, OF SCHLÖGLMÜHL, NEAR VIENNA, AUSTRIA-HUNGARY.

PAPER-MAKING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 288,125, dated November 6, 1883.

Application filed October 10, 1883. (No model.)

To all whom it may concern:

Be it known that I, MAX SEMBRITZKI, of Schlöglmühl, near Vienna, Austria-Hungary, have invented a new and useful Improved Paper-Making Apparatus, of which the following is a full, clear, and exact description.

This invention consists in apparatus for mechanically carrying out the process of making hand-made paper, the system comprising, first, a paper-maker mold of special construction, and having a peculiar series of motions; second, the application of pneumatic exhaustion to the under surface of the mold to facilitate the draining of the paper-pulp and the couching of the sheet; third, a distribution of the pulp, whereby a given quantity may be poured upon and spread over the mold; fourth, the combination of the arrangements constituting a new system of apparatus for mechanically making hand-made paper.

In order that the invention may be more readily understood, I have illustrated an example thereof in the accompanying drawings, without, however, limiting myself to the form or details of the parts therein represented.

Figure 1 is a side elevation of the whole system; Fig. 2, a longitudinal section; Fig. 3, a plan; Fig. 4, a vertical section, showing the arrangement and mounting of the mold and the pneumatic exhaust applied thereto. Fig. 5 is a diagram representing the various motions given to the mold.

In all these figures the same letters indicate the same parts.

A is the mold, fitted within a casing, *a*, having double walls, between which the pulp overflowing from the mold A is received, to be returned to the vat. The mold is free to receive a slight vertical motion within this casing through the agency of jointed push-rods *b*, riding upon rails *c*. The mold A, with its double casing *a*, rests upon a carriage, B, moving upon ways for the purpose of transporting the mold to and fro between the pulp-distributing and the couching apparatus. During its forward movement the mold passes between a pair of vibrating arms, *d*, pivoted at their one end, and connected at their other end to a crank or other mechanical motion, whereby a lateral shaking motion is imparted to the mold and its casing. The mold thus receives, first, a uniform alternate rectilinear motion of trans-

lation; second, a vertical motion at each traverse of the mold; third, a horizontal lateral shaking motion.

The exhaust beneath the mold for draining the pulp and facilitating the couching of the sheet is effected at the desired moment by the unclosing of the mouth of a tube, *e*, pendent from the carriage B, and sliding upon a partly-horizontal and partly-inclined slide, *f*, or by a self-acting cock.

The pulp-distributor consists of a chest, D, having open tubes *h*, fixed in holes in the bottom and rising within the chest, said tubes being arranged in rows in regular order. A plunger, *i*, is fitted to work up and down in the chest, the plunger having vertical hole in it corresponding to the tubes *h*, but of sufficiently greater diameter to allow the pulp displaced by the descent of the plunger to rise through said holes and overflow down the tubes *h*, the mechanism being so arranged that this shall occur when the mold arrives beneath the chest.

The operation of the apparatus is as follows: The tank C is supplied with purified pulp by any suitable regulated means, whence it flows through tubes *g* to the distributing-chest D. The mold A, at the end of its return travel, comes beneath the distributor D and strikes the elbow-lever *k*, whereby the plunger *i* is forced down, thereby displacing a certain quantity of pulp, which flows out through tubes *h* onto the mold. The mold then begins to receive the series of movements indicated in the diagram Fig. 5, wherein *x* is the starting-point of the mold covered with pulp, the travel of the mold being from *x* to *y* and back again from *y* to *x*. In its forward motion the mold receives a transverse vibratory motion while passing between the pair of arms *d*, in order to spread the pulp uniformly upon the mold, discharge the excess into the space between the double walls *a*, and cause the fibers composing the pulp to become felted together. Up to this point of the operation the mouth of the tube *e* remains closed by resting upon the horizontal part of the slide *f*; but by the continued advance of the carriage the mouth of the tube passing over the downwardly-inclined part of the slide becomes gradually inclosed, allowing the drainings from the mold which have collected in the tube to run off, thereby produc-

ing an exhaustive effect beneath the pulp, which may be regulated by suitably arranging the inclination of the slide, or by a cock placed on pipe *l*. When the mold has arrived at *y*,
5 the pulp is almost completely drained, and becomes entirely so by the vibratory upward motion from *y* to *y'*, which it receives by the jointed rods *b* riding up the inclined ends of the rails *c* (or by any other suitable means) on
10 the return movement of the carriage. This upward motion also has the effect of increasing the suction produced by the partial vacuum beneath the mouth. The carriage returns about half its travel with the mold in this ele-
15 vated position, and on arriving at *Z'* the mold touches the couch-roll *E*, whereby the sheet is taken off and couched upon the endless felt or blanket, which travels at the same velocity as the mold-carriage. The sheet being couched
20 passes beneath one or more press-rolls before it arrives at the drying apparatus, which may be combined with the above; or the sheet may

be hung up to dry in suitable drying-chambers.

I claim—

25 The combination of mechanical devices or arrangements, substantially as herein described, for imparting automatically the various motions given to the mold by the workman in the manufacture of paper by hand, 30 whereby to perform mechanically the operations of supplying, distributing, felting together, and draining the pulp to form a sheet, which is then couched and pressed automatically, substantially as specified, and illustrated 35 in the drawings annexed.

The foregoing specification of my improved paper-making apparatus signed by me this 3d day of September, 1883.

MAX SEMBRITZKI.

Witnesses:

FRIEDRICH STREUSSLER,
FRANZ GURLINGON.