

No. 872,265.

PATENTED NOV. 26, 1907.

R. VAN BUGGENHOUDT.  
APPARATUS FOR BLEACHING.

APPLICATION FILED DEC. 22, 1906. RENEWED OCT. 11, 1907.

3 SHEETS-SHEET 1.

Fig. 1.

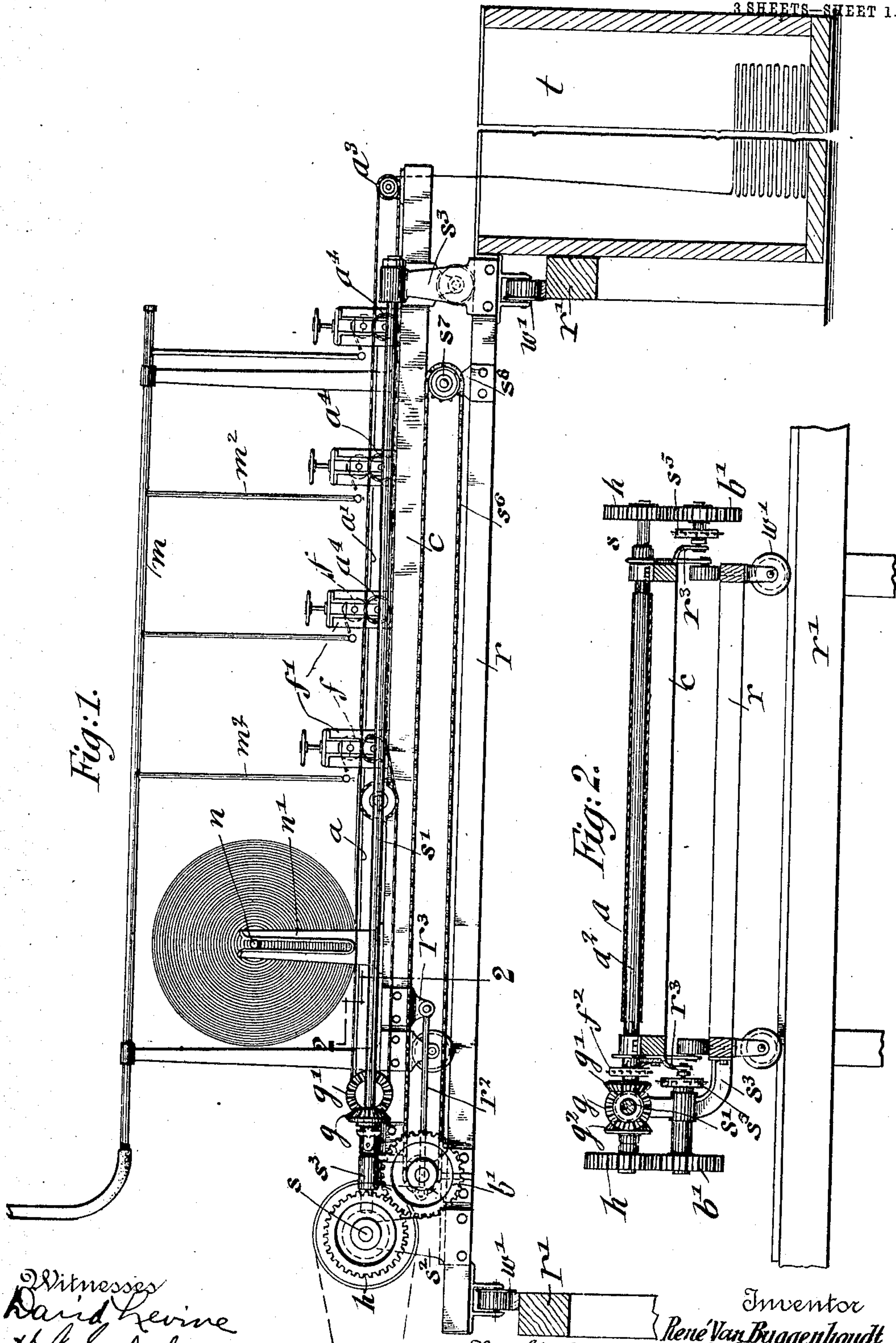
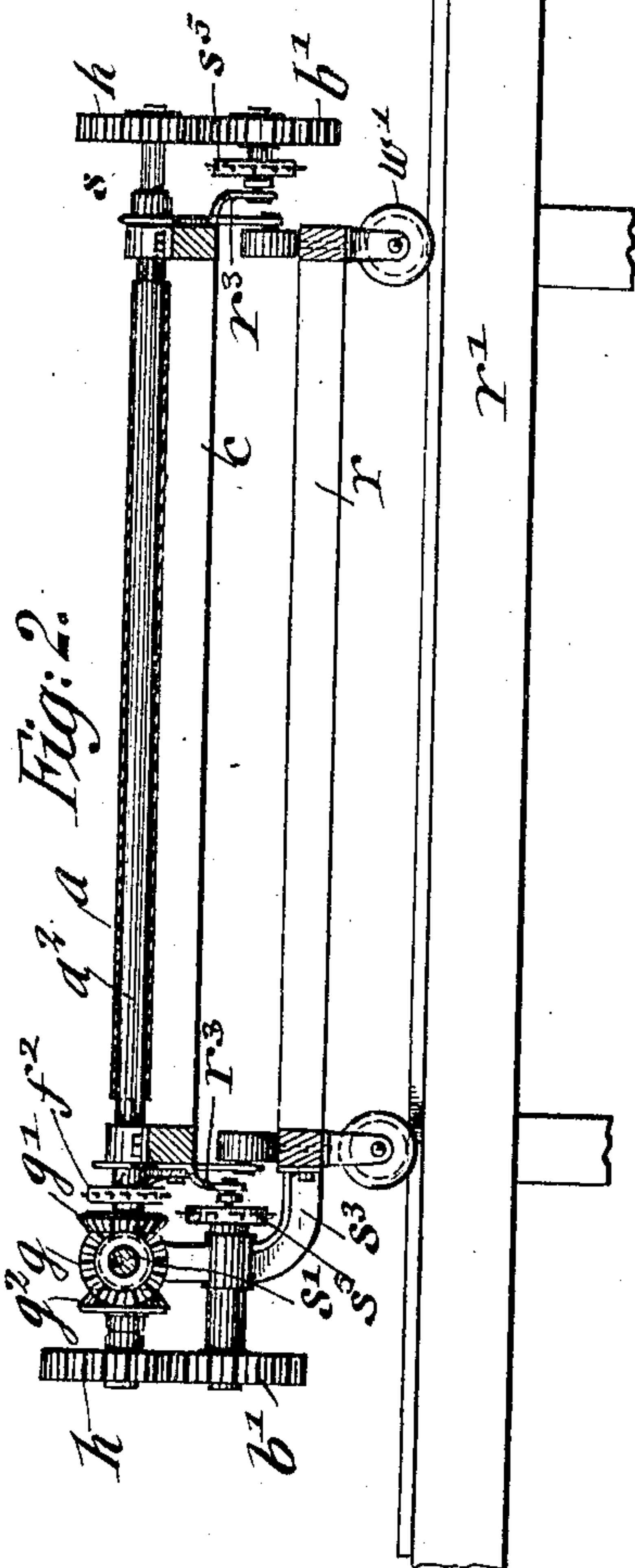


Fig. 2.



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3 SHEETS—SHEET 2.

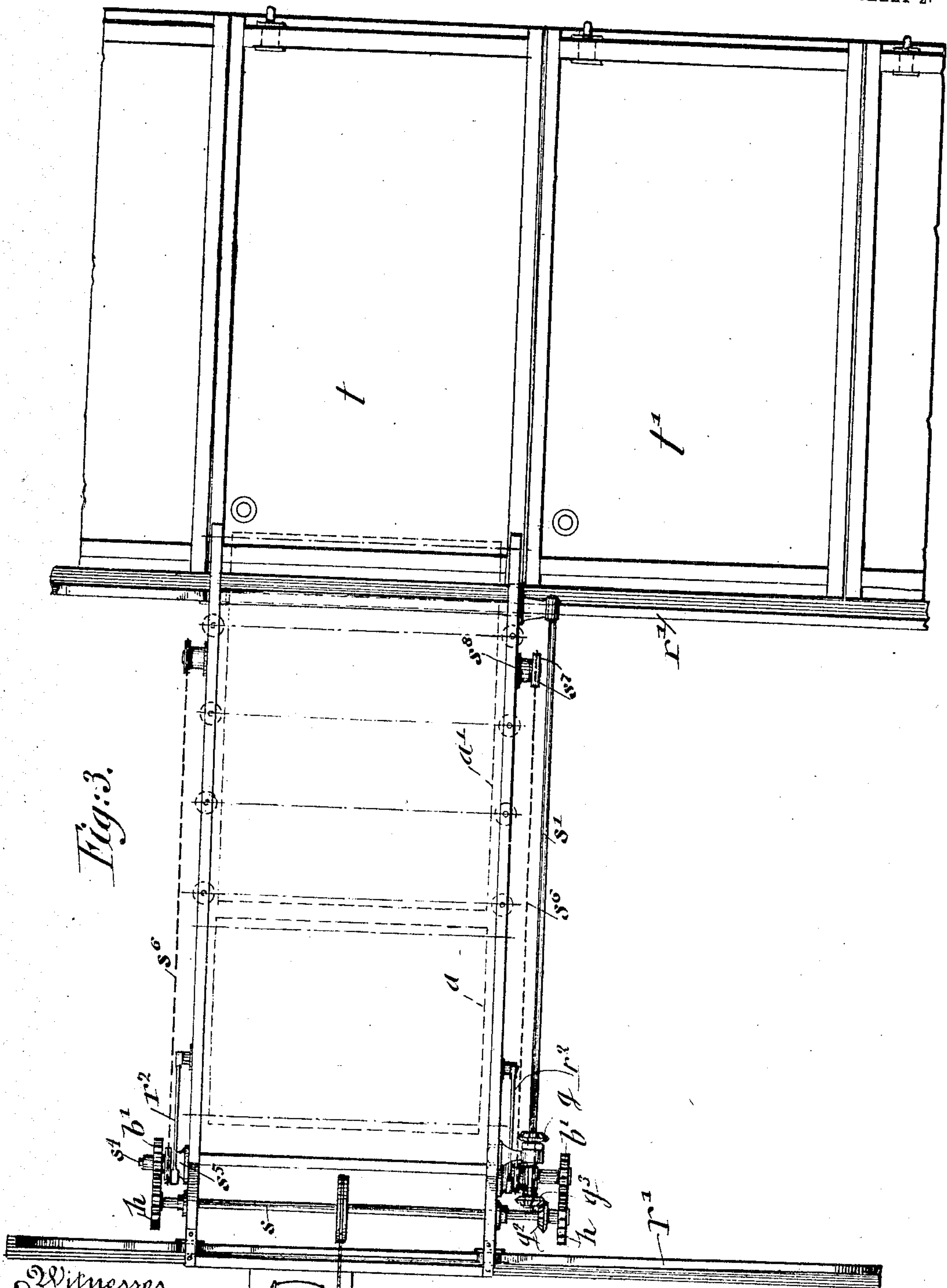
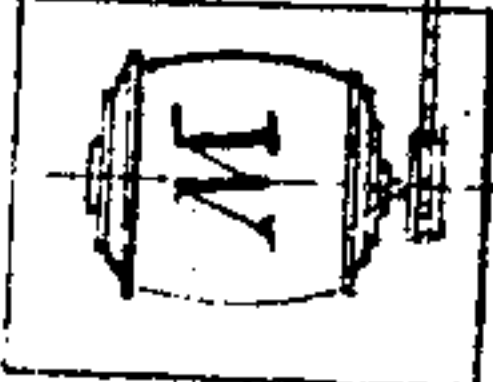


Fig. 3.

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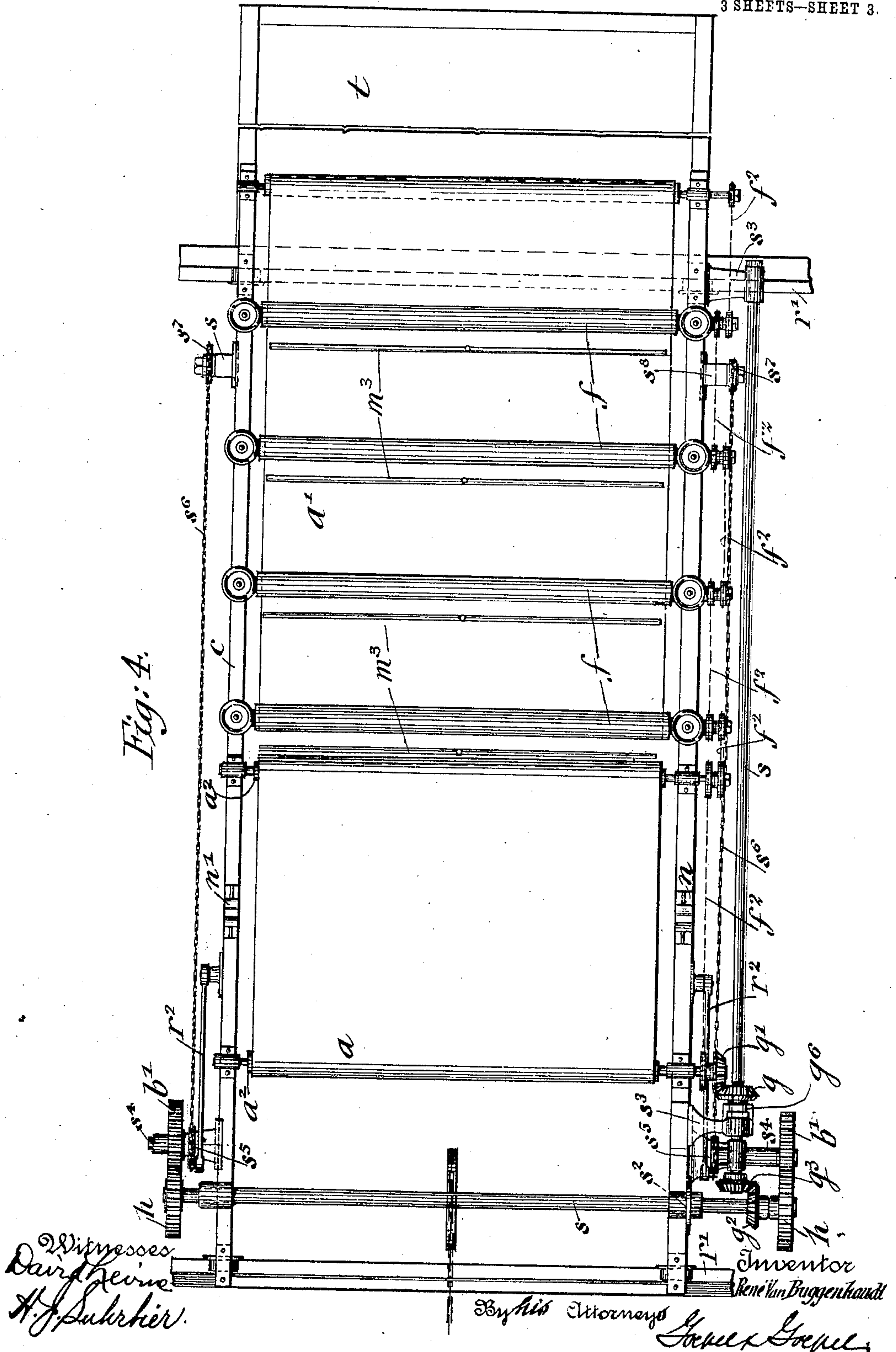
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3 SHEETS—SHEET 3.

Fig. 4.



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# UNITED STATES PATENT OFFICE.

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## APPARATUS FOR BLEACHING.

No. 872,265.

Specification of Letters Patent.

Patented Nov. 26, 1907.

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*To all whom it may concern:*

Be it known that I, RENÉ VAN BUGGENHOUDT, a citizen of the Kingdom of Belgium, residing in New York, in the borough of the Bronx, county and State of New York, have invented certain new and useful Improvements in Apparatus for Bleaching Textile Fibers, Yarns, and Piece Goods, of which the following is a specification.

10 This invention relates to an improved apparatus for bleaching fibers, such as cotton, flax, hemp, jute, ramie and the like, preparatory to spinning and weaving the same, as well as for bleaching yarns and piece goods, so that the bleaching is accomplished in a quicker and more uniform manner than by the methods and apparatus heretofore employed; and for this purpose the invention consists of an apparatus for bleaching fibers, which comprises an endless apron, a carriage for said apron, means for moving said endless apron, a tank located at one end of the carriage below the apron, means for reciprocating the carriage forward and backward over said tank, spray-pipes supported above said apron on the carriage, and pairs of squeezing-rollers located adjacent to the spray-pipes on said carriage, said spray-pipes and squeezing-rollers producing the complete saturation of said fibers with the bleaching medium.

15 In the accompanying drawings, Figure 1 represents a vertical longitudinal section of my improved apparatus for bleaching fibers for textile fabrics, Fig. 2 is a vertical transverse section of the same taken on line 2, 2, Fig. 1, and drawn on a larger scale, Fig. 3 is a plan-view of the entire apparatus, and Fig. 4 is a plan-view of the saturating machine, drawn on a larger scale.

Similar letters of reference indicate corresponding parts in the several figures.

Referring to the drawings, *c* represents a carriage, which is supported on wheels and which is moved forward and backward on rails *r* on a bottom-frame *r*<sup>1</sup>, said rails extending alongside of a tank *t* which is arranged at the end of the carriage. On the carriage *c* are arranged two endless aprons *a*, *a*<sup>1</sup> which are stretched over driving-rollers *a*<sup>2</sup> and *a*<sup>3</sup> and supported on intermediate rollers *a*<sup>4</sup>, said aprons receiving continuous motion around the rollers by means of bevel gear-wheels *g*, *g*<sup>1</sup>, of which the bevel gear-wheel *g*<sup>1</sup> is applied to the shaft of the driving-roller.

*a*<sup>2</sup>, while the bevel gear-wheel *g* is splined to a longitudinal spindle *s*<sup>1</sup> and movable longitudinally thereof. Rotary motion is imparted by a second pair of bevel gear-wheels *g*<sup>2</sup>, *g*<sup>3</sup> from the driving-shaft *s* that is supported in suitable bearings of standards *s*<sup>2</sup> arranged stationarily alongside of the carriage *c* on the bottom-frame *r*<sup>1</sup>. The spindle *s*<sup>1</sup> is supported in bearings of brackets *s*<sup>3</sup> supported on the carriage at opposite ends thereof, so that simultaneously with the rotary motion imparted to the aprons *a*, *a*<sup>1</sup> by the bevel gear-wheels *g*, *g*<sup>1</sup> longitudinally-reciprocating motion is imparted to the carriage *c*.

Reciprocating motion is imparted from a motor *M* to the carriage *c* by gear-wheels *h* on opposite ends of the driving-shaft *s*, which mesh with gear-wheels *b*<sup>1</sup> on short auxiliary shafts *s*<sup>4</sup> which are supported in bearings of the brackets *s*<sup>2</sup> adjacent to the standards of the driving-shaft *s*. One of the brackets *s*<sup>3</sup> is provided with an extension *g*<sup>0</sup> which fits about the bevel gear *g* and is so connected therewith that said gear is moved longitudinally of the shaft *s*<sup>1</sup> when the carriage is reciprocated, and hence rotates the aprons through its connections therewith, irrespective of the position into which the carriage is moved. On the auxiliary shafts *s*<sup>4</sup> are arranged sprocket-wheels *s*<sup>5</sup> which impart motion to sprocket-chains *s*<sup>6</sup>, the opposite ends of which are guided by sprocket-wheels *s*<sup>7</sup> which are supported on stationary standards *s*<sup>8</sup> located on the bottom-frame *r*<sup>1</sup>. To links on the endless sprocket-chains *s*<sup>6</sup> are pivoted connecting-rods *r*<sup>2</sup>, the opposite ends of which are pivoted to downwardly-extending hangers *r*<sup>3</sup> attached to the carriage *c*, so that the motion imparted to the sprocket-chains will move the carriage forward until the same is moved into a position over the tank *t*. The pivot-connections of the connecting-rods *r*<sup>2</sup> with the sprocket-chains will then pass over the guide sprocket-wheels *s*<sup>7</sup>, when the return motion of the carriage commences, until the pivot-connections of the sprocket-chains with the connecting-rods *r*<sup>2</sup> pass over the driving sprocket-wheels, when the forward motion of the carriage commences, and so on.

On the carriage *c* are supported a number of pairs of squeezing-rolls *f* at a uniform distance from each other, said squeezing-rolls being supported in bearings of upright standards *f*<sup>1</sup> supported on the carriage, the bear-



ings of the upper rolls being adjustable by hand-wheels and screw-connection towards the lower rolls, so that a variable degree of pressure can be exerted by the same on the fibers which are conducted by the aprons towards and through the squeezing-rolls *f*. Rotary motion is imparted to the lower squeezing-rolls of each set of squeezing-rolls by sprocket-wheel and chain transmissions *f*<sup>2</sup> from the shaft of the driving-roller *a*<sup>2</sup> of the apron *a*, the upper squeezing-rolls rotating by frictional contact with the lower rolls. On the carriage *c* is supported longitudinally, at a suitable height above the aprons, a main supply-pipe *m* for the bleaching solution, one end of the pipe being connected by a rubber hose *m*<sup>1</sup> with a tank for supplying the bleaching solution, said rubber hose being of sufficient length so as to permit the forward motion of the carriage with the supply-pipe *m* over the tank *t*. From the supply-pipe *m* extend, in downward direction, vertical supply-pipes *m*<sup>2</sup>, of smaller size, which terminate adjacent to and in front of the squeezing-rolls in transverse horizontal spray-pipes *m*<sup>3</sup> which are provided with minute openings at their under-sides so as to supply a continuous spray of the bleaching solution to the fibers carried by the aprons *a*, *a*<sup>1</sup> towards the squeezing-rolls *f*, *f*. The fibers are supplied in a lap or sliver which is wound around a feed-roll *n*, the shaft of which is supported in slotted standards *n*<sup>1</sup> on the carriage *c*, to the aprons *a*, *a*<sup>1</sup> and fed forward successively through the squeezing-rolls. The horizontal spray-pipes arranged near each pair of squeezing-rolls deliver a uniform supply of the bleaching solution to the fibers, after which the squeezing action on the lap or sliver takes place, so that finally the uniform distribution of the bleaching solution throughout the fibers is obtained. When the lap or sliver of fibers arrives at the end of the apron *a*<sup>1</sup>, it is delivered in a sheet or sliver onto the bottom of the tank *t* and deposited therein in successive layers owing to the reciprocating motion of the carriage *c*, until the tank is entirely filled up with the superposed layers of saturated fibers. The fibers are then permitted to stand in the tank for some time so as to be thoroughly acted upon by the bleaching solution. When the bleaching is completed, water is admitted through the bottom of the tank and forced gradually in upward direction through the fibers to the upper part of the tank so as to remove the bleaching solution by the washing action of the water on the fibers. The bleached and washed fibers are then conducted from the tank by a conveyer to a centrifugal extractor, which removes the excess of moisture from the same, and are finally dried at ordinary temperature in the air or by artificial means in a drier, as desired.

65 The tank in which the bleaching or wash-

ing operation takes place may be made of wood, cement or other suitable material. As soon as the tank is filled with the superimposed layers of fibers, the carriage *c* is moved by means of its bottom-frame *r*<sup>1</sup>, which is provided with wheels *w*<sup>1</sup> movable on the rails *r*, to an adjacent tank *t*<sup>1</sup>, where the action of feeding the fibers and impregnating them by filtering solution is continued, the layer or sliver of saturated fibers being delivered into the next tank *t*<sup>1</sup> in the same manner as before into the tank *t*. The fiber in the tanks is permitted to stand for some time for the action of the bleaching solution after which it is washed and conducted to the centrifugal extractor and drier as before.

A number of tanks may be arranged side-wise of each other and the saturating machine moved from one tank to the other, so that a continuous bleaching action is kept up—one tank after the other being filled and the contents bleached and washed and then discharged for the drying operation.

The operation of bleaching can be regulated according to the strength of the bleaching solution.

If desired, round perforated baskets may be placed in the tanks so that the bleached and washed fibers in the same can be directly transferred to the extractor and thereby time saved in conducting the layers of fiber to the same.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In an apparatus for bleaching textile fibers, the combination of a tank, a track upon said tank, a carriage movable to and fro over said track, an endless apron on said carriage, means for reciprocating said carriage, and means for driving said apron during the reciprocation of said carriage.

2. In an apparatus for bleaching textile fibers, the combination of a tank, a track, a carriage movable on said track toward and away from said tank, an apron on said carriage, means to drive said apron, means to feed the fibers to said apron, and means to direct jets of bleaching solution against such fibers while conveyed by said apron.

3. An apparatus for bleaching textile fibers, which consists of a carriage, a tank located at the end of said carriage and in line with the same, a track for said carriage, means for reciprocating the carriage on said track, a plurality of pairs of squeezing-rolls supported on the carriage, an endless apron passing through between the squeezing-rolls, spraying-pipes located adjacent to the squeezing-rolls for supplying the spraying solution to the fibers transferred to the apron, and means for imparting motion to the endless apron while the carriage is moving to and fro over the tank.

4. In an apparatus for bleaching textile



fibers, the combination of a reciprocating carriage provided with a number of pairs of squeezing-rolls, an endless apron passing through the squeezing-rolls, means for supplying the textile fibers to said apron, spraying-pipes located adjacent to said squeezing-rolls, means for rotating the squeezing-rolls, and means for imparting motion to the apron for feeding the fibers forward to the spraying-pipes and squeezing-rolls.

5. The combination, with a plurality of tanks arranged side by side, and transverse ways arranged adjacent to said tanks, of an apparatus for bleaching textile fibers, which consists of a carriage supported on a wheel-platform moving on longitudinal rails at right angles to the transverse ways, said car-

riage being provided with a plurality of pairs of squeezing-rolls, spraying-pipes adjacent to the squeezing-rolls, an endless apron passing through the squeezing-rolls below the spraying-pipes, means for feeding the fibers to one end of the apron, means for imparting reciprocating motion to the carriage, and means for imparting rotary motion to the squeezing-rolls and driving-rollers of the apron.

In testimony, that I claim the foregoing as my invention, I have signed my name in presence of two subscribing witnesses.

RENÉ VAN BUGGENHOUDT.

Witnesses:

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