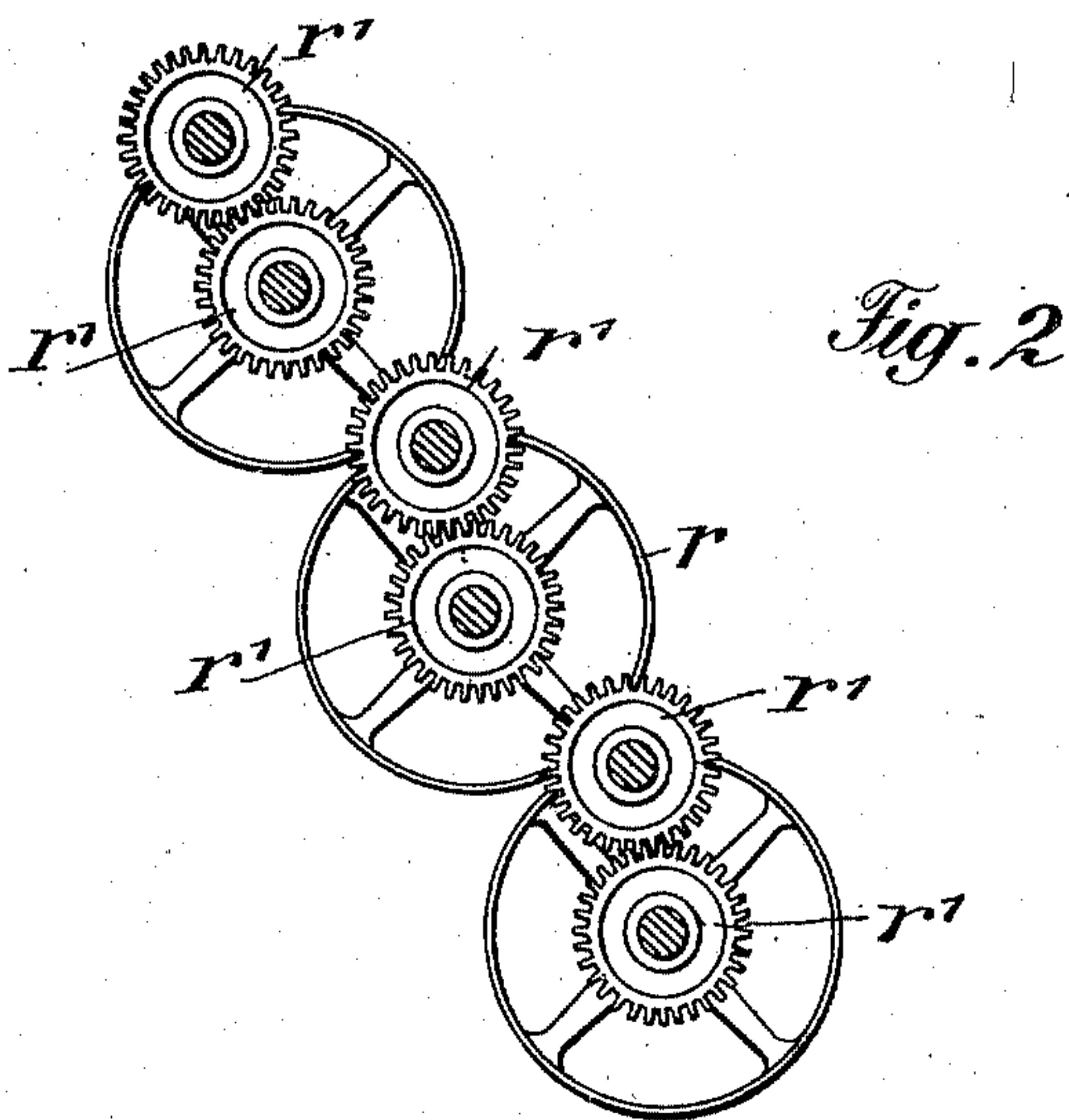
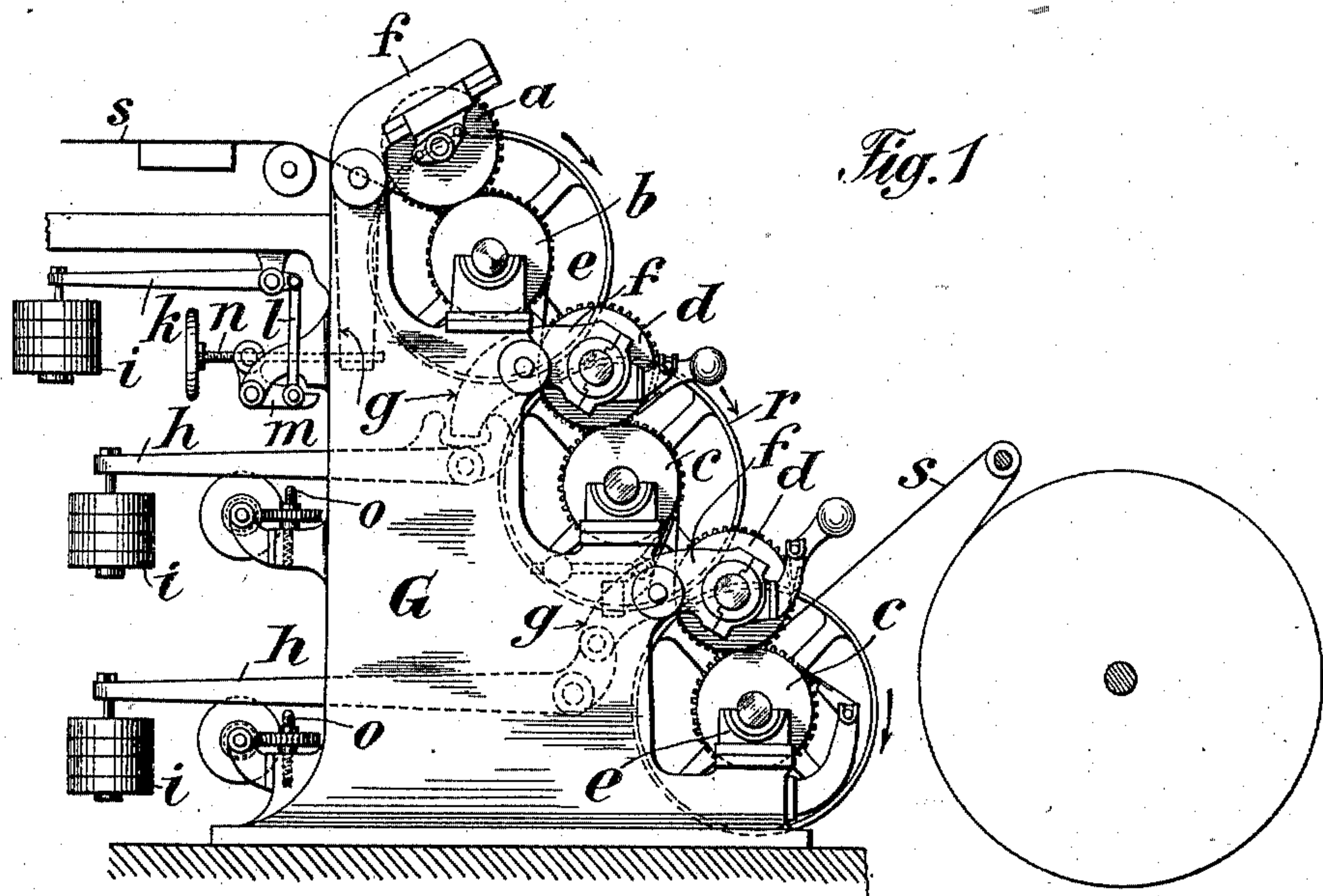


G. BRENNWALD.
PAPER MAKING OR LIKE MACHINE.
APPLICATION FILED MAR. 12, 1909.

967,604.

Patented Aug. 16, 1910.



Witnesses:

Jesse N. Lutton.

B. M. Sommers

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by *Henry M. [Signature]*
Atty-

UNITED STATES PATENT OFFICE.

GUSTAV BRENNWALD, OF ZURICH, SWITZERLAND.

PAPER-MAKING OR LIKE MACHINE.

967,604.

Specification of Letters Patent. Patented Aug. 16, 1910.

Application filed March 12, 1909. Serial No. 482,883.

To all whom it may concern:

Be it known that I, GUSTAV BRENNWALD, a citizen of the Republic of Switzerland, residing at Zurich, Haldenstrasse 130, Switzerland, have invented certain new and useful Improvements in or Relating to Paper-Making or Like Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

This invention relates to a process for removing water from paper or pulp behind the couch rolls of paper machines, in which the paper or pulp is carried without felt or cloth through the wet presses.

A construction according to this invention is illustrated by way of example in the accompanying drawing in which only the part of the paper machine required for understanding the invention is illustrated.

Figure 1 is a side view of the construction, Fig. 2 shows a gearing for driving the rolls of the presses.

The two couch rolls are marked *a* and *b*. The pulp layer *s* is guided from the same, without use of any felt or cloth, through two wet presses arranged one above the other, behind the couch rolls, each wet press consisting of a pair of rolls *c* and *d*, the rolls of all the presses being arranged one above another in the form of steps. The rolls *b* or *c* are supported in fixed bearings *e* of a frame *G*, and the rolls *a* or *d* constituting the press rolls, are supported in the arms *f* of bell crank levers *f g* pivoted to the frame. The rolls *a* and *d* are pressed by means of weights *i* against the rolls *b* and *c* or against the paper pulp *s* guided between the rolls *a b* and *c d*. The weights *i* for the rolls *d* of the upper and lower wet press, are suspended to levers *h* which are mounted on the frame *G* and engage with the arms *g* of the bell crank levers *f g* of the said rolls, while the weights *i* for the roll *a* of the couch rolls are suspended to levers *k* connected by means of rods *l m* and screw spindles *n* to the arms *g* of the corresponding bell crank levers *f g*.

By means of the screw spindles *n* as well as by means of the screw spindles *o* acting on the levers *k* from below and capable of

being longitudinally moved by worm gears, the action of the weights *i*, or the pressure of the rolls *a* and *d*, can be regulated or neutralized. The rolls *a* and *b* of the couch rolls, as well as the rolls *c* and *d* of the two wet presses, have exactly the same diameter and are therefore connected together by means of toothed wheels *r* having an equal number of teeth.

r are driving pulleys.

The pulp layer *s* after leaving the couch rolls, is guided through the two wet presses in such manner that the layer is placed approximately vertically on the upper rolls *b* of the wet presses, and then is driven by the rolls of the two presses. The pulp is at the same time deprived of water by the action of the press rolls and is thereupon introduced into the drying apparatus.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, I declare that what I claim is:

1. A process for removing water from paper or pulp after leaving the couch rolls, which comprises feeding the paper unsupported by felts to suitable presses in succession at uniform speed.

2. A process for removing water from paper or pulp after leaving the couch rolls, which comprises feeding the paper unsupported to suitable presses, that portion of the web of paper not in contact with the rolls being maintained substantially vertical.

3. The process of removing water from paper or pulp after leaving the couch rolls, which comprises feeding the unsupported web substantially vertically to the presses and maintaining the web supported over a large area of the rolls of the presses.

4. Means for removing water from paper or pulp, comprising in combination with the couch rolls, a plurality of wet presses arranged in echelon, and means for driving the couch rolls and the rolls of the wet presses at the same speed, whereby that portion of the web passing from one set of rolls to another will be unsupported and maintained substantially vertical, there being a large area of contact of the web on the rolls.

5. Means for removing water from paper or paper pulp, comprising in combination with the couch rolls, a plurality of wet presses arranged in echelon, each composed of a pair of rolls, all the rolls being of the same diameter, and means to drive all the

rolls at the same speed, whereby the web will have contact with each roll over substantially one-fourth its surface and that portion of the web passing between the pairs of
5 rolls will be unsupported and substantially vertical.

In testimony that I claim the foregoing as

my invention, I have signed my name in presence of two subscribing witnesses.

GUSTAV BRENNWALD.

Witnesses:

ERNST FISCHER,
JOSEPH SIMON.