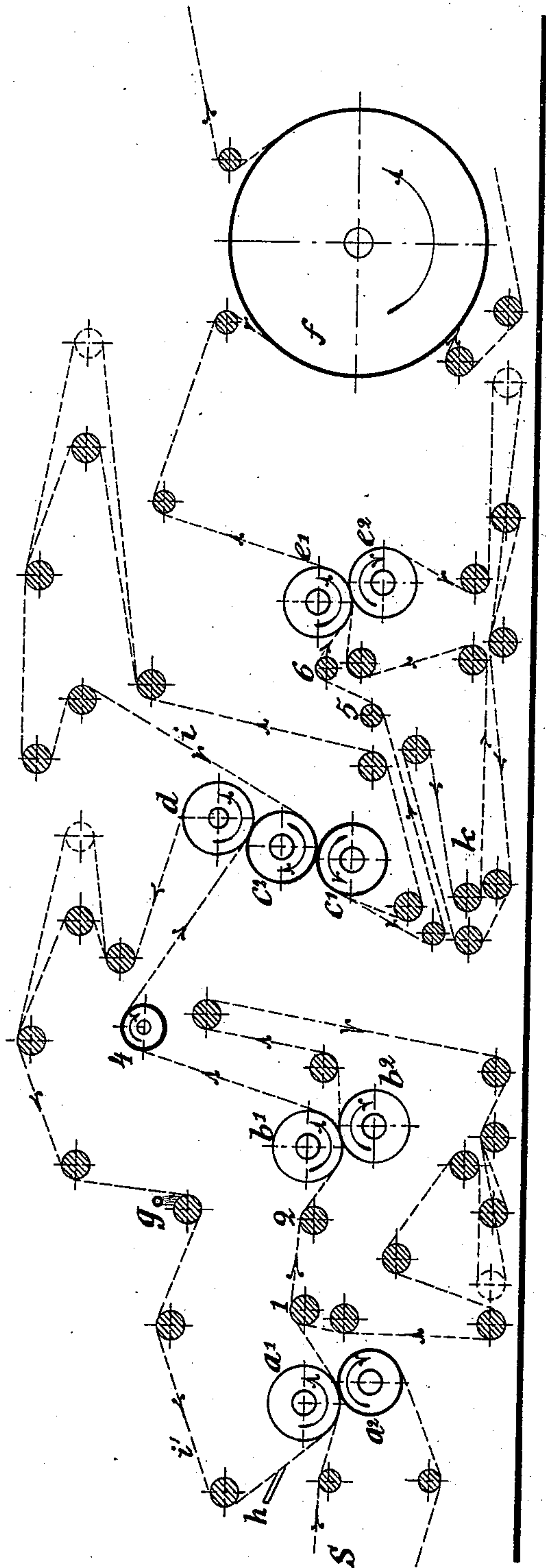


(No Model.)

C. EICHHORN.  
PAPER MAKING MACHINE.

No. 464,608.

Patented Dec. 8, 1891.



Witnesses:  
T. J. Coan.  
A. Bonghman.

Inventor:  
C. Eichhorn  
by his attorneys  
Roeder & Briesen

# UNITED STATES PATENT OFFICE.

CARL EICHHORN, OF FOCKENDORF, GERMANY.

## PAPER-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 464,608, dated December 8, 1891.

Application filed February 11, 1891. Serial No. 381,022. (No model.)

*To all whom it may concern:*

Be it known that I, CARL EICHHORN, a subject of the German Emperor, and a resident of Fockendorf, in Sachsen-Altenburg, Germany, have invented certain new and useful Improvements in Paper-Making Machines, of which the following is a specification.

My invention relates to a new and useful improvement in paper-making machines; and it has for its object to carry the continuous length of paper from the making-wire without any assistance by hand through the couching-rolls, then to the first press-rolls, and directly up to the second press-rolls. Thus I avoid the waste which commonly results in feeding the continuous length of paper into the first press-rolls, and I further avoid any danger to the attendant of making wire and other paper-machines while feeding the paper into the first press-rolls and withdrawing it therefrom.

My machine requires no assistance by hand excepting to guide the paper from the second press-rolls onto the third press-rolls, or to the drying-cylinder, as the construction of the machine may require. I also obtain by my invention an increased working speed of the paper-machine.

The accompanying drawing represents a longitudinal vertical section through the feeding mechanism of my improved machine.

The paper coming from making-wire *S* will pass between the couching-rolls *a'* and *a*<sup>2</sup>. It will adhere to the upper endless cloth *i'* and proceed between said upper cloth and the wet felt below, passing over the guide-rollers 1 and 2 and between the first press-rolls *b'* and *b*<sup>2</sup>, by which the water is pressed out. Thence the paper passes over a guide-roller 4, the wet felt being not further in contact with the paper after the rolls *b'* and *b*<sup>2</sup> have been passed. The roller 4 is preferably made of copper covered with fine worsted or felt, by which the formation of blisters and folds is prevented. The paper still adhering to the upper cloth *i'* then proceeds farther on to the upper roll *c*<sup>2</sup> of the second press-rolls, against which the paper is forced by a weighted copper roller *d* of large diameter lying on the upper cloth *i'* and exercising a sufficient pressure to separate the paper from said cloth. The pressure, however, is not strong enough

to squeeze water out of the paper. The paper now adheres to the upper roll *c*<sup>2</sup>, and being carried along by the same passes between the press-rolls *c*<sup>2</sup> and *c'*, together with the endless felt *i*, which enters between said rolls *c'* and *c*<sup>2</sup> in a downward direction. While passing between said rolls *c*<sup>2</sup> and *c'* the paper is further delivered of the water still therein contained. In coming out from between said rolls *c'* and *c*<sup>2</sup> the paper is for the first time seized by the hand of the attendant, and, falling on the lower felt, it is guided below the guide-roller 5 and above the guide-roller 6, and then between the cylinders *e'* and *e*<sup>2</sup>, or to the drying-cylinder *f*, as the construction of the machine may require.

The upper cloth *i'* has a fair length, and may work for months without being changed. It is constantly washed in its working course by a sprinkling tube or pipe *g*, provided with a suitable valve or valves that adjust the amount of water spread upon the cloth. A scraper *h* may be arranged above the upper couching-roll *a*<sup>2</sup> to take off any excess of water.

The lower sheets of endless felt are of considerable length and may be employed without being exchanged for several piles, even with machines working with great speed. The said endless sheets of felt may be conveniently, readily, and safely removed and exchanged. The upper endless felt *i* is also of greater length than usually employed, and therefore may be used for a longer time than hitherto practiced without interfering with the bearings of the rolls and presser-cylinders. In mounting the felt *i* the upper press-roll *c*<sup>2</sup> is raised by screwing, and the copper roll *d*, bearing against said roll *c*<sup>2</sup>, follows its motion, when the felt *i* may be readily mounted.

What I claim is—

The combination of an upper endless cloth *i'* with press-rolls *b'* *b*<sup>2</sup>, guide-roller 4, press-rolls *c'* *c*<sup>2</sup>, weighted roller *d*, and endless felt *i*, substantially as specified.

In testimony whereof I hereunto sign my name in the presence of two subscribing witnesses, this 1st day of December, 1890.

CARL EICHHORN.

Witnesses:

CARL WILBE,  
C. RUABE.