(No Model.)

R. SMITH.

METHOD OF ACTUATING WET FELT.

No. 362,673. Patented May 10, 1887.

Fig. 1.

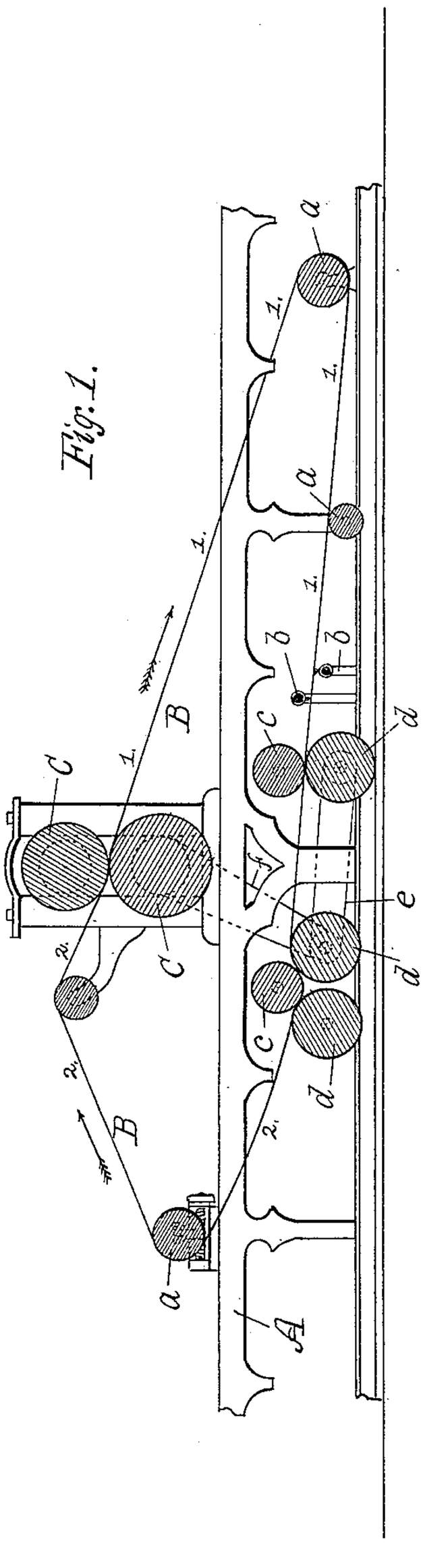
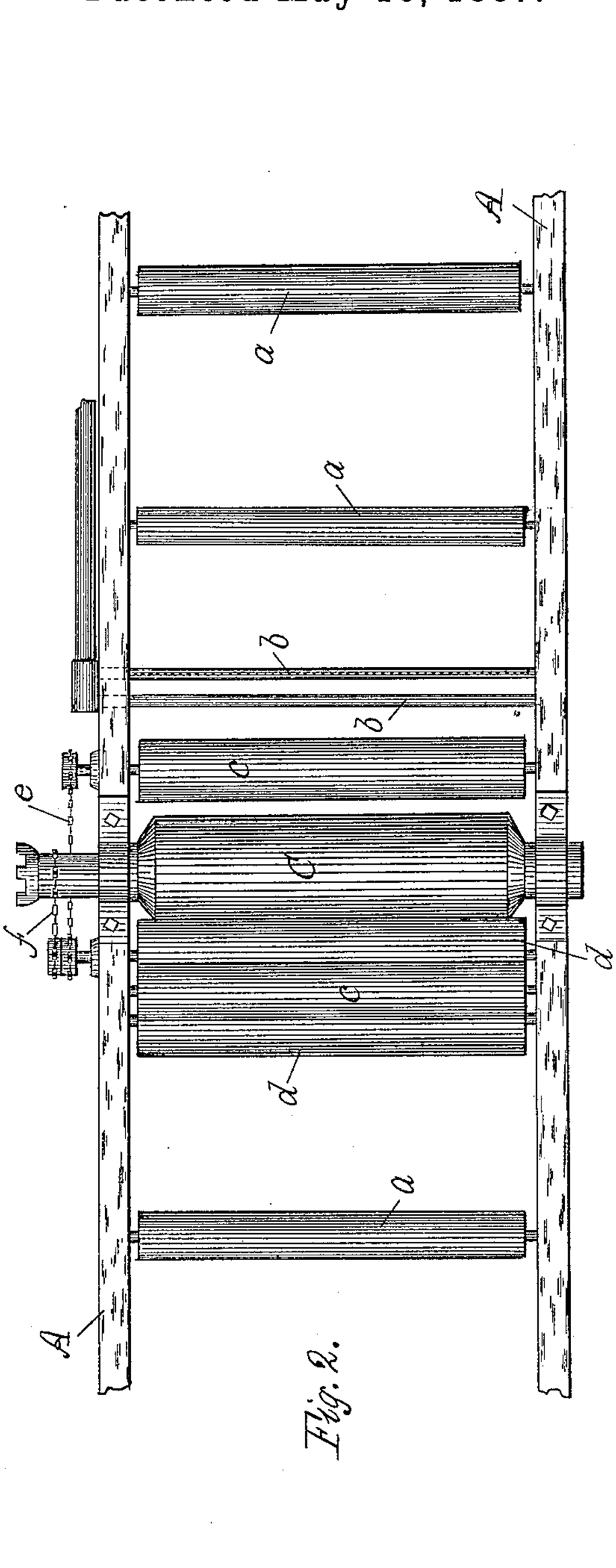


Fig. 2.



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METHOD OF ACTUATING WET FELT.

SPECIFICATION forming part of Letters Patent No. 362,673, dated May 10, 1887.

Application filed November 8, 1886. Serial No. 218,254. (No model.)

To all whom it may concern:

Be it known that I, RICHARD SMITH, a citizen of Canada, residing at Sherbrooke, in the county of Sherbrooke and Province of Quebec, have invented certain new and useful Improvements in the Method of Actuating Wet Felts; 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 paper-making machines, particularly that part which contains the "wet felt," so called; and it consists in the arrangement of mechanism by which said felt is not actuated by the press-rolls, but independently by said mechanism, and is fed into and between said rolls as the latter rotate in a loose condition or free from tension.

The drawings represent, in Figure 1, a central vertical section of the wet-felt portion of a paper-making machine, and Fig. 2 is a plan of the same with the felt removed.

Hitherto in the operation of wet felts in paper-making machines the felt has been actuated and driven by means of the press rolls between which it passes. In so doing the pull brought upon the material composing said felt in rotating it tends to draw the fibers together at this particular point just prior to entering the rolls, and renders the felt less porous at the moment when it is to be actively employed. Thus the felt is temporarily thickened and "blowing" is produced, while at the same time the dirt from the paper then being pressed is the more readily retained, and the felt must be removed and washed more frequently.

The object of my present invention is to provide separate and independent mechanism which shall produce continuous rotary movement in the felt and permit the latter to advance freely and without pull between the press-rolls, which are now to perform their legitimate function—solely that of squeezing the felt and the continous paper web resting thereon and traveling with it—while the felt, slightly slack, is in its most efficient condition to absorb and remove the moisture from the paper.

In the drawings, A represents the frame portion of a paper-making machine, which contains the wet felt, shown at B as an endless woven fabric, composed entirely and preferably of wool, the essential property of which is its spongy and porous character. Centrally, or thereabout, of the frame and transversely disposed and horizontally mounted therein is a pair of press-rolls, C C, while suitably disposed at various intervals, and parallel therewith at various intervals, are a series of small guide-rolls, *a a a*, which serve to support and direct the course of the felt during its continuous travel between the press-rolls. Shower-pipes *b b* are placed on either side of the felt, as usual, and by constantly directing a stream of water thereon serve to wash and partially assist in removing the dirt, which constantly tends to obstruct the pores and thereby lessen the efficiency of the felt.

To remove the strain from the felt ordinarily caused by the press-rolls in driving it, and thereby permit it to advance and enter between said rolls in a slightly slack or loose state, I have constructed separate driving mechanism which is adapted to actuate the felt and cause it to travel slightly faster in one portion than the speed imparted to it as it is passed between the press-rolls in another portion. This mechanism in the present instance is composed of a series of driving-rolls, *c c d d d*, arranged transversely of and mounted in the lower part of the frame in close proximity to the floor, and between which the felt passes.

Two of the lower and actuating rolls, *d d*, are positively connected by a chain or belt, *e*, or by gears, while motion is imparted to the said series by a belt or chain, *f*, which passes to and about the shaft of the lower press-roll, or, if preferred, to an independent driving-shaft. The upper rolls, *c c*, act not only as squeeze-rolls to extract the water from the felt after passing between the sprinklers, but also serve to produce a certain degree of friction, upon which the travel of the felt depends; hence,

when the pull caused by the independent fast-moving drive-rolls *d d* upon that portion of the felt 1 1 1 has reached a certain limit the latter is allowed to slip. Moreover, it is evident that the felt is kept in a slight degree slack upon the front side, or in that portion marked 2 2 2, which is in the act of advancing between the press-rolls. By this arrangement all the slack which exists in the felt is maintained in front of the press-rolls, and said felt enters between the latter in a loose and porous condition, in readiness to receive and absorb the liquid from the paper web.

In lieu of controlling the rapidity in travel of the felt by permitting the latter to slip between the driving-rolls positively geared, thereby creating wear of the felt, a friction clutch or drum may be employed instead of said gears, and thus, when the pull upon the felt exceeds a certain amount, the slip will occur upon the drum, and wear of the felt is avoided.

I claim—

1. The improvement in the method of actuating wet-press felts, substantially as described, which consists in presenting the felt by means of driving mechanism to the press-rolls in a slack condition or free from tension, as and for the purposes herein stated.

2. The method of operating wet-press felts, consisting in passing the felt through press-rolls, that part of the felt which has not yet reached said rolls being kept free from tension and that part of the felt which has passed through said press-rolls being under tension, substantially as set forth.

3. The combination, with a wet felt, B, the press-rolls C C, and guide-rolls *a a*, of the fast-driving mechanism composed of the interconnected rolls *c c d d d*, actuated and co-operating as and for the purposes herein specified.

In testimony whereof I affix my signature in presence of two witnesses.

RICHARD SMITH.

Witnesses:
F. CURTIS,
H. E. LODGE.