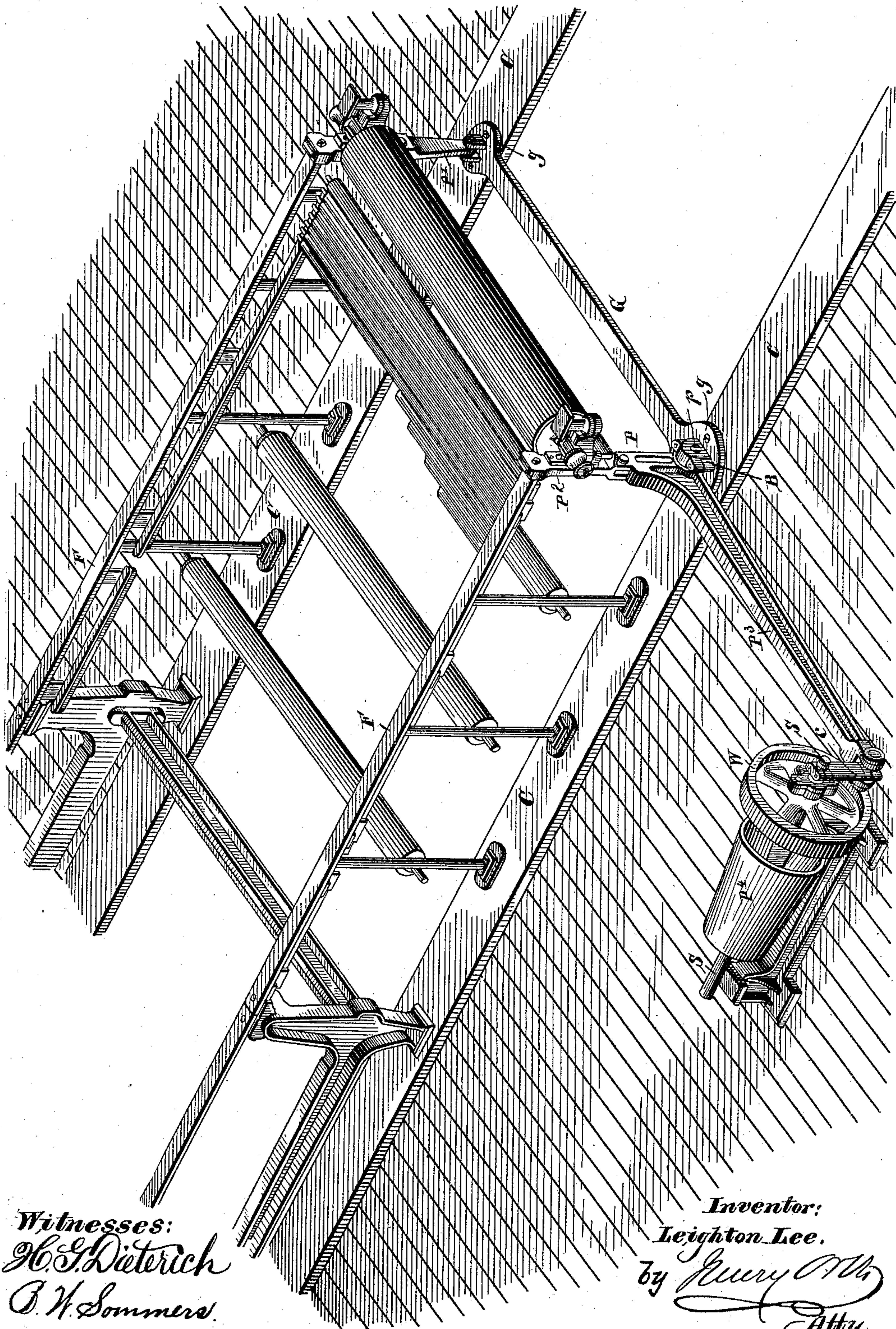


(No Model.)

L. LEE.  
PAPER MAKING MACHINE.

No. 476,153.

Patented May 31, 1892.



Witnesses:  
H. S. Dieterich  
B. W. Sommers.

**Inventor:**  
**Leighton Lee.**  
by *Henry M. Gatty.*



# UNITED STATES PATENT OFFICE.

LEIGHTON LEE, OF WILMINGTON, DELAWARE.

## PAPER-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 476,153, dated May 31, 1892.

Application filed November 14, 1891. Serial No. 411,923. (No model.)

*To all whom it may concern:*

Be it known that I, LEIGHTON LEE, a citizen of the United States, residing at Wilmington, in the county of New Castle and State of Delaware, have invented certain new and useful Improvements in Paper-Making 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 drawing, and to letters of reference marked thereon, which forms a part of this specification.

The invention relates to improvements in paper-making machines, and more particularly to the means for imparting a lateral vibratory motion to the frame that carries the endless wire web or cloth to which the pulp is fed, as is the case in the well-known Fourdrinier machines. In these paper-making machines, or in such machines as are provided with the Fourdrinier shaking or vibrating cloth frame, the vibratory motion is imparted to one of the posts at the feed or breast roll end of the frame, said post having an arm projecting vertically from its upper end and being connected by a connecting-rod to a crank-wheel or eccentric. This mode of vibrating the endless-cloth frame necessitates an inordinately-high stand for the driving-wheel or eccentric, which stand is, in consequence of its great height, subjected to severe strain and vibration, necessitating a comparatively heavy stand relatively to the weight of the driving element, which stand, notwithstanding its weight, is liable to constant vibrations, tending to loosen its fastenings, while the vibratory motion of the stand is more or less detrimental to the good operation of the vibrating frame. On the other hand, the upwardly-projecting long arm of the shake-post seriously interferes with the removal of an old cloth and the substitution of a new one to such an extent as to endanger the same, as they are often cracked or broken, entailing a very material loss, as said cloths are very expensive.

My invention has for its object to avoid these difficulties by constructing one of the frame-posts, usually called the "shake-post," at the feed end of the endless-wire-cloth

frame in the form of a bell-crank or right-angled lever, so that the driving element can be mounted on a very low stand or frame and driven by a belt from a pulley on a low-down shaft instead of an overhead shaft, and so that the vibrating lever may be constructed with a comparatively long horizontal arm to increase the leverage and correspondingly reduce the power necessary to vibrate said lever.

The invention consists, essentially, in constructing the shake-post at the feed end of the endless-wire-cloth frame of a paper-making machine in the form of a bell-crank lever, and in the combination therewith of a driving element adapted to impart a vibratory motion to the lever, and consequently to the frame, as will now be fully described, reference being had to the accompanying drawing, which shows in perspective a portion of an endless-wire-cloth frame of a paper-making machine embodying my invention.

The endless-wire-cloth frame F in its general construction is or may be like those heretofore used, the supporting posts or standards P P' at the feed or breast roll end of the frame being pivoted to the bed plates or beams, as usual, with the exception that one of said posts—as, for instance, the post P—is constructed in the form of a bell-crank or right-angled lever having journals *p*, fitted in suitable bearings B, which may be secured to the bed-plate C, or preferably to a transverse brace plate or girt G, whose opposite ends are enlarged, as shown at *g*, to form a suitable base for said bearings. The horizontal arm P<sup>3</sup> of the lever P extends from the foot of the vertical arm P<sup>2</sup>, so as to lie close to the floor, and its outer end is connected to a crank *c* on a shaft S, that carries the fly-wheel W and the driving and speeding cone-pulley P<sup>4</sup>, said shaft being mounted in bearings on a stand, which, as shown, is very low as compared with the high stands heretofore used to carry the driving element for imparting a lateral vibratory motion to the endless-wire-cloth frame.

The operation of the devices described will be readily understood from the drawing, and their advantages will be appreciated by those conversant with this class of machines.

Of course it will be understood that the means described for imparting a lateral vi-



bratory motion to the endless-wire-cloth frame of a paper-making machine may also be employed to impart a lateral vibratory or shaking motion to other devices—as, for instance, to horizontal screens or the like—and that whenever desired or found more convenient the driving element for imparting a vibratory motion to the shake-post may be driven from an overhead shaft or directly from an engine, and also that instead of imparting a lateral vibratory or reciprocating motion to such frame the pivotal connections of such frame-supports may be so arranged as that a longitudinal vibratory or reciprocating motion may be imparted to such frame.

Having thus described my invention, what I claim as new therein, and desire to secure by Letters Patent, is—

1. In a horizontal frame adapted to vibrate or reciprocate on or with its supports, means for imparting such vibratory or reciprocating motion thereto, which consists of a bell-crank or right-angled lever, the vertical arm of which constitutes one of the supports for the frame, and means, such as a revoluble crank, connected with the other arm to impart a vibrating motion to the lever on its fulcrum, substantially as set forth.

2. The combination, with the endless-wire-cloth frame of a paper-making machine adapted to vibrate or reciprocate laterally on or with its supports, of a bell-crank lever P, whose vertical arm forms one of the supports for the feed end of the frame, and means, such as a revoluble crank, connected with the other arm of said lever to impart a vibratory motion thereto, substantially as set forth.

3. The combination, with the bed-plates C and cross brace or girt G, secured to said bed-plates and having journal-bearings at opposite ends, the post P', journaled in the bearings at one end of the cross-girt, and the laterally-vibratory frame F, of the shake-post P, having the form of a bell-crank or right-angled lever pivoted in the bearings at the opposite end of the cross-girt G and provided with journals p at the point of junction of its vertical and horizontal arms, and means substantially such as described connected with the horizontal arm of the lever for imparting a vibratory motion thereto, substantially as and for the purpose set forth.

LEIGHTON LEE.

Witnesses:

GEO. W. MAY,  
FRED L. GREINER.