(No Model.)

W. W. WYTHE.

AUTOMATIC BRAKE FOR HOISTING MACHINES.

No. 279,304. Patented June 12, 1883.

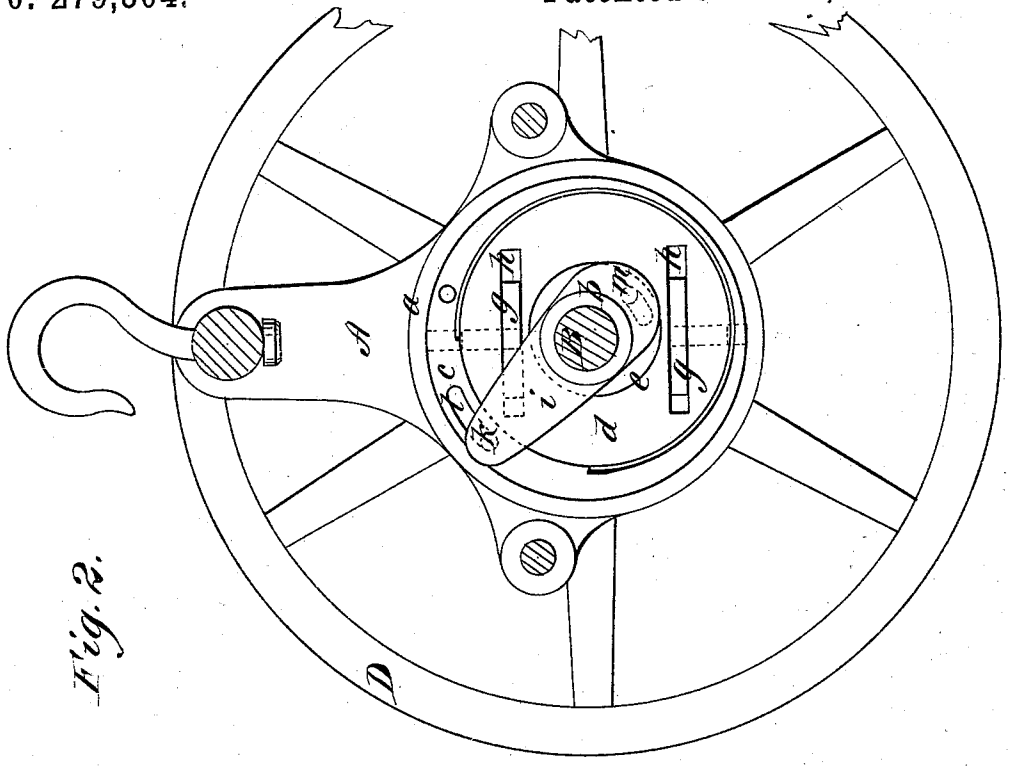


Fig. 2.

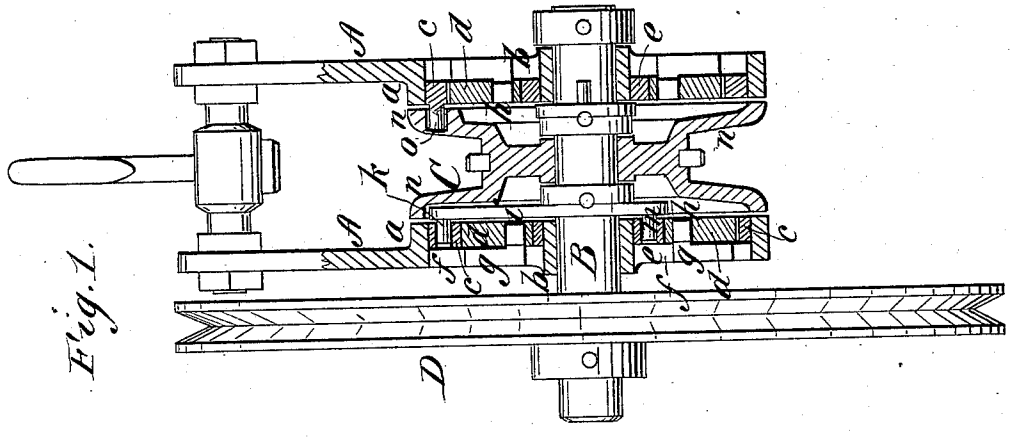


Fig. 1.

WITNESSES:

Donn Twitchell.

C. Sedgwick

INVENTOR:

W. W. Wythe

BY

ATTORNEYS.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

WILLIAM W. WYTHE, OF RED BANK, NEW JERSEY.

AUTOMATIC BRAKE FOR HOISTING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 279,304, dated June 12, 1883.

Application filed November 6, 1882. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM W. WYTHE, of Red Bank, in the county of Monmouth and State of New Jersey, have invented a new and Improved Automatic Brake for Hoisting-Machines, of which the following is a full, clear, and exact description.

The object of my invention is to provide brake mechanism for pulleys, derricks, cranes, crabs, and other hoisting-machines, which shall be brought into operation automatically by the weight of the load and released by the movement of the operating-shaft when power is applied for raising or lowering the weight.

The invention consists in an eccentric-brake constructed as hereinafter described and claimed.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in both the figures.

Figure is a transverse section of a hoisting-pulley provided with my improved brake mechanism. Fig. 2 is a face view of the eccentric mechanism.

A A are the two sides of the frame of a hoisting-machine of ordinary character. B is the operating-shaft, carrying the chain-wheel C and wheel D, that is provided with a hand-rope. It is to be understood, however, that the wheel D may be replaced by a crank or other operating device, and also be upon a separate shaft, to which the chain-wheel shaft is connected by gearing of any suitable character; or a winding drum may be used in place of the chain-wheel. The sides A are each formed with a rim, *a*, and have a central boss, *b*, for the shaft B. Within the rim *a* is a ring, *c*, the outer periphery of which fits to the interior surface of the rim *a*, while the inner periphery of the ring *c* is formed eccentric to the shaft B. I prefer to use a complete ring; but practically a segment of an eccentric-ring, forming a double wedge, is all that is required, and the ring when used must be cut or filed away at the inside, so that only a small portion of the crown takes any bearing. Within the ring *c* is a circular disk, *d*, and at the center of this disk is an eccentric-ring, *e*, fitting snugly around the boss *b*. The side A is formed with radial apertures *f f*, extending from the boss *b* to the rim *a*, and at the opposite sides of the center; and in these slots are guide-pieces *g* of T form, their T-heads resting upon the inner surface of the side A and entering transverse slots *h*, that are formed in the disk *d*. On the shaft B is an arm, *i*, provided with a pin, *k*, at one end, entering an elongated slot or groove, *l*, formed in the cam-ring or double wedge *c*, and also provided at its other end with a pin, *m*, that enters an elongated slot or groove formed in the eccentric *e*. The chain or sprocket-wheel, which is loose on the shaft, is formed with flanges *n*, one of which is apertured to take over a pin, *o*, that projects from the eccentric or double wedge *c*; or, in case the shaft carries a pinion or a drum, either will be connected to the eccentric or wedge in the same manner.

In the operation of the hoisting-machine, power being applied to the shaft B, the chain-wheel is rotated in either direction, as the case may be, this rotation of the chain-wheel being caused by the travel of the ring or double wedge *c*, which is connected to both the shaft and the chain-wheel; and rotation without any binding action of the eccentric is allowed by the connection of the arm *i* to the middle eccentric, *e*, which causes the said eccentric to rotate. At the same time the disk follows the movements of the eccentrics *c e*, as allowed by guides *g*, the guides preventing rotation of disk *d*. A perfectly free rotation is thereby insured when power is applied to the hand-wheel for hoisting the weight. As soon as the hoisting-wheel is released and the load left suspended the chain-wheel being connected to the eccentric or double wedge *c*, the latter is moved to the right or left a short distance and immediately clamps upon the disk *d*, thereby holding the weight. The slot in the eccentric or wedge *c* allows movement of the wedge independent of the arm *i* far enough to allow of the clamping action. The parts being constantly shifted the clamping action will occur in different places on the surface of the disk *d*, and the wear will thus be made uniform.

This brake is of simple construction and durable in all its parts. As shown, each side A of the frame is provided with a similar mechanism, as described, and the shaft B is provided with two arms, *i*, placed at an angle of ninety degrees to each other, so as to insure the operation of the brake in case the load is released when either arm is at the dead-center.

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

1. The automatic-brake, consisting of the inner eccentric-ring, *e*, connected to the operating-shaft, the outer eccentric or double wedge connected to the chain-wheel, pinion, or drum, and to the operating-shaft, and the intermediate disk *d*, substantially as described, combined together and with the frame for operation, as specified.

2. In brake mechanism, the combination of the eccentric-ring *e*, the disk *d*, the eccentric or wedge *c*, the guides *g*, the arm *i*, connecting the shaft and both eccentrics, and a chain-wheel, pinion, or drum connected to the outer eccentric, all substantially as described, for operation as set forth.

3. In hoisting-machines, the combination, with the operating-shaft and its chain-wheel, pinion, or drum, of clamping-eccentrics that are operated by the movement of the chain-wheel, pinion, or drum in either direction, and released by movement of the operating-shaft, substantially as shown and described.

WM. W. WYTHE.

Witnesses:
GEO. D. WALKER,
C. SEDGWICK.