

A. HALL.  
Horse-Power.

No. 204,969.

Patented June 18, 1878.

Fig. 1.

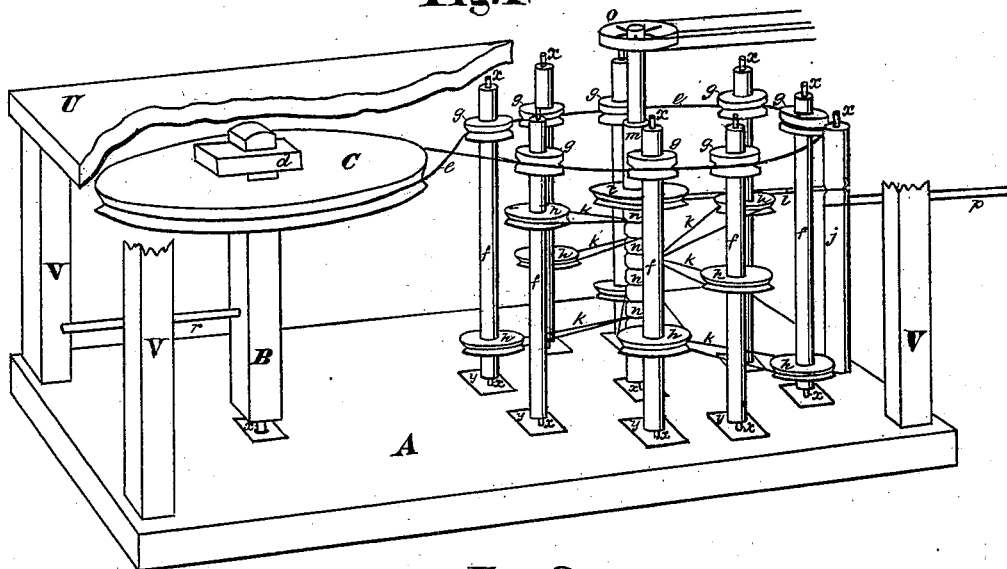
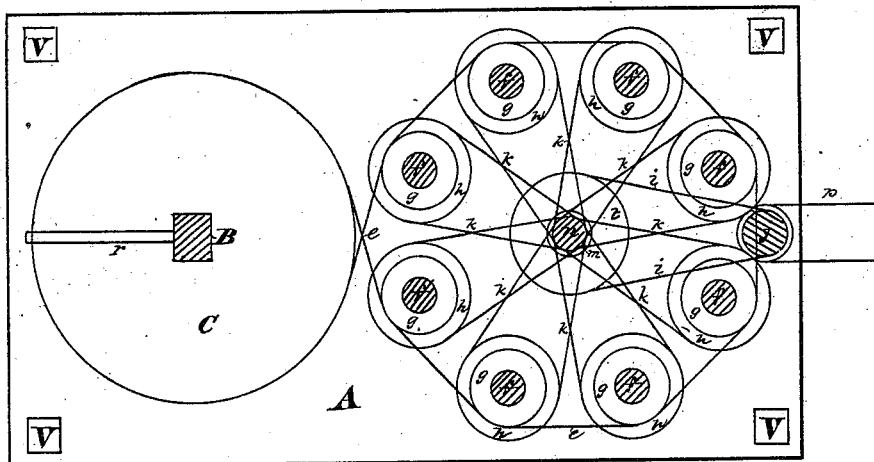


Fig. 2.



Witnesses,  
Walter S. Fisher  
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# UNITED STATES PATENT OFFICE.

ABRAHAM HALL, OF BETHLEHEM, KENTUCKY.

## IMPROVEMENT IN HORSE-POWERS.

Specification forming part of Letters Patent No. **204,969**, dated June 18, 1878; application filed May 25, 1878.

*To all whom it may concern:*

Be it known that I, ABRAHAM HALL, of Bethlehem, county of Henry, and State of Kentucky, have invented certain Improvements in Horse-Powers, of which the following is a specification:

My invention relates generally to an improvement upon any horse-power to which by its nature it may be adapted, and it is adapted, for instance, to the one described in the United States Patent of W. P. Emerson, dated May 13, 1873, for improvement in horse-powers.

The said Emerson's improvement, as described in his said patent, consists, essentially, of a series of vertical shafts arranged in a circle, with pulleys at the lower end, all in the same horizontal plane, in which the driving-belt works, the horse being hitched to the belt, and the upper ends having transmitting-pulleys in different planes, from which belts extend, embrace, and work upon fast pulleys on a central vertical shaft, which is provided with a large fast pulley, by means of which the motion imparted by the driving-belt is transmitted to the machinery to be driven, and the main shafts are provided with adjustable bearings, and are forced out against the driving-belt to tighten the same by means of set-screws.

My invention, hereinafter described and claimed, consists of mounting another vertical shaft outside of the circular group of shaftings aforesaid in a suitable frame, so that it may revolve, and providing it with a drum or large pulley, and then enlarging the driving-band aforesaid, and, after crossing it, placing it around such large pulley, with the design that such inside shaft and large pulley may be revolved by means of a lever or sweep, and operated by animal or other power attached to such lever.

The object of my said invention is to lessen draft and communicate an increased speed to the center shaft, and thence to the machinery to be driven.

In the accompanying drawings, Figure 1 represents a perspective view of the whole apparatus, including my invention, the top of the frame being broken away in order to display fully the shafts and pulleys; and Fig. 2, a horizontal section of the same, taken in a plane just above the drum C.

A, V, and U indicate the frame; *f*, the shafts, arranged in a circle; *x*, their pivots, and *y* their lower bearings; *h*, their fast pulleys, each in a different plane, and having a separate belt, *k*, to run over a corresponding pulley, *n*, on center or counter shaft *m*; and *g*, the fast pulleys on the shaft *f*, all in the same plane, carrying the driving-belt *e*; and C, the drum, mounted upon shaft B, and carrying the driving-belt *e*, crossed between the drum and group of shafts *f*. *j* is an additional shaft, by which motion may be received from counter-shaft *m* by means of a band, *i*, and imparted to any machine, to be driven by means of a band, *p*. O is a pulley on shaft *n*, and may be used with a band to effect the same result.

No device is herein shown for tightening the driving-band upon its pulleys, and that object may be accomplished in any suitable manner.

The whole machine is to be set in motion by the force applied to the outer end of lever *r*, attached to the shaft B.

The frame to sustain, confine, and furnish bearings for the several shafts described, may be of any suitable construction, it being no part of my invention, which consists, essentially, of the combination of the drum C and its shaft B with the series of shafts and pulleys shown by the said Emerson in his said patent, or any other similar apparatus to which it may be adapted.

As before stated, my said improvement will greatly diminish the draft and increase the speed of motion. It will be found especially useful in running circular-saw mills, and like machines which require that they should be run at a high rate of speed.

What I claim as my invention, and desire to secure by Letters Patent, is—

The drum C, its shaft B, and the enlarged band *e*, constructed and arranged substantially as described, in combination with shafts *f*; their pulleys *h* and *g*, counter-shaft *m*, and its series of pulleys *n* and bands *k*, substantially as shown and set forth.

ABRAHAM HALL.

Witnesses:

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