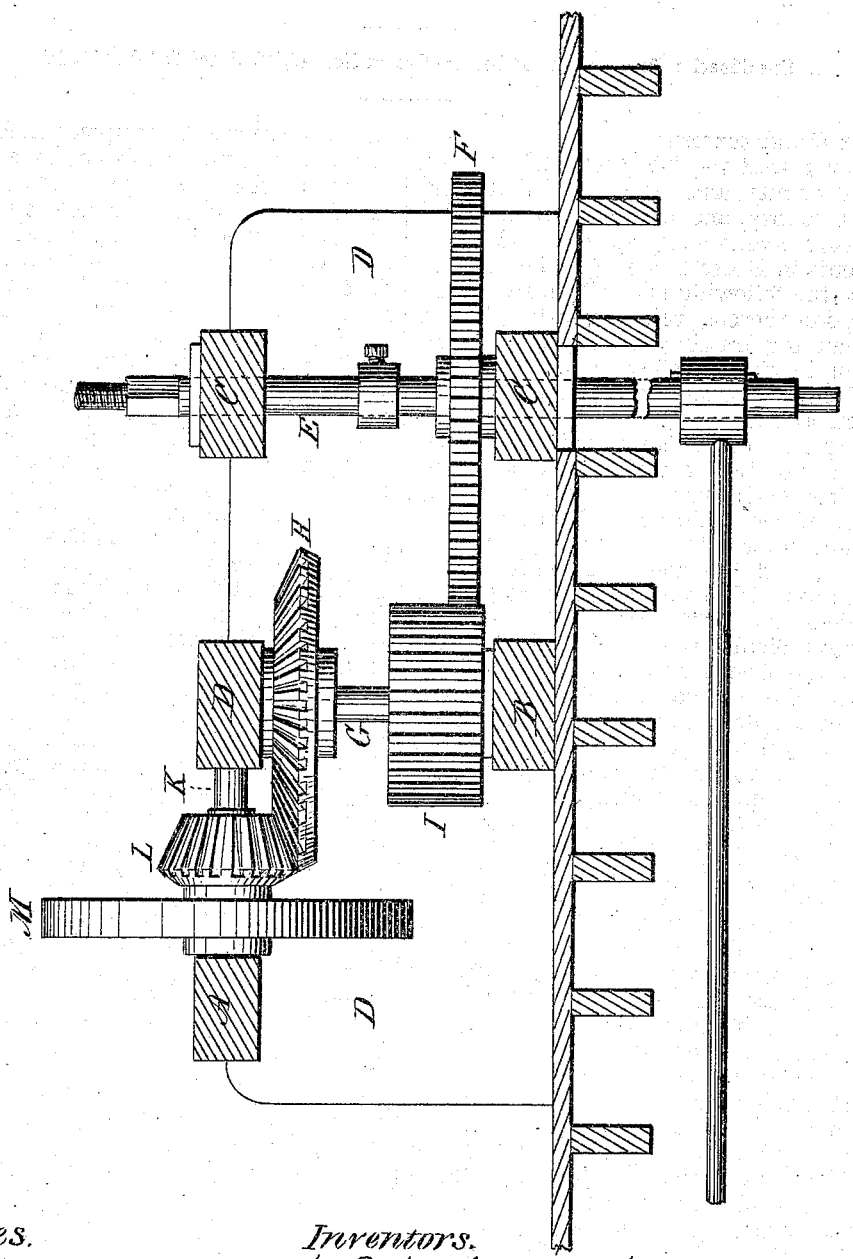
W. R. WRIGHT & D. A. WARNOCK.

Improvement in Horse Powers.

No. 119,909. Patented Oct. 10, 1871.



Witnesses.

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UNITED STATES PATENT OFFICE.

WILLIAM R. WRIGHT, OF BARNWELL COUNTY, AND DAVID A. WARNOCK, OF BEAUFORT COUNTY, SOUTH CAROLINA.

IMPROVEMENT IN HORSE-POWERS.

Specification forming part of Letters Patent No. 119,909, dated October 10, 1871.

To all whom it may concern:

Be it known that we, WILLIAM R. WRIGHT, of Barnwell county, and DAVID A. WARNOCK, of Beaufort county, and in the State of South Carolina, have invented certain new and useful Improvements in Horse-Powers; and do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawing making a part of this specification, in which is shown a side elevation of our device with the supporting-frame removed upon a vertical line.

In ginning out cotton the machinery for performing the operation, together with the horse-power for driving the same, are placed upon the second floor of the building, with the driving-shaft of said horse-power extending vertically downward through the floor, with its lower end suitably stepped within a bearing that rests upon the lower floor or upon the ground. As thus arranged great difficulty is experienced in securing perfect and free action of the horse-power for the reason that the varying weight of cotton upon the second floor causes a greater or less change in its vertical position, and thereby a corresponding change in the relative position of the driving-shaft and gear and the other portions of the horse-power.

To remedy this and other defects is the object of our invention, which consists, principally, in the means employed for enabling the driving-shaft and gear to automatically adjust themselves to changes in the vertical position of the balance of the mechanism caused by the settling of the floor, substantially as is hereinafter specified. It consists, further, in the construction and arrangement of the various portions of the operating mechanism, substantially as and for the purpose hereinafter shown.

In the annexed drawing, A, B, and C represent a number of bars arranged horizontally and in parallel lines and in the relative positions shown, and connected together at their ends by means of two vertical side pieces, D, the whole forming the frame of the machine. Passing vertically upward through the cross-bars C is a shaft, E, secured to or upon which, immediately above the lower cross-bar, is a spur-gear, F. A second shaft, G, is journaled vertically within suitable bearings attached to the cross-bar B, and is provided at its upper end with a beveled gear, H, and at its lower end with a spur-pinion, I, the latter of which meshes with and receives motion from the gear F. A third shaft, K, is journaled horizontally and in a line with the shafts E and G within the cross-bars A and C, and is provided with a beveled pinion, L, which meshes with the gear H, and has secured upon one end a band-wheel or pulley, M, by means of which motion is communicated to the operating mechanism for ginning the cotton.

As thus arranged it will be seen that a rotary movement of the driving-shaft E will be communicated through the gears F and H and the pinions I and L to the horizontal shaft K, and cause the latter to revolve with great relative speed, and that from the peculiar arrangement and combination of the parts, and the relative proportions of the driving and driven gear, a high rate of speed is obtained for the driving-pulley with a material loss of power from friction. The lower end of the driving-shaft E is stepped upon the ground or floor beneath that upon which the other mechanism rests, and in order to permit a considerable change in the vertical positions of said shaft and the other mechanism of the horse-power without derangement of the same, said shaft is uniform in size throughout its length so as to slide freely through its bearings in the cross-bars C, while the pinion I is lengthened vertically so as to permit the gear F to slide up or down as far as may be required without getting out of engagement with said pinion.

By this construction and arrangement of parts it will be seen that no ordinary settling of the floor upon which the horse-power rests can in any wise cramp or affect the free motion of the latter, which is enabled to adjust itself automatically to changes of position.

Having thus fully set forth the nature and merits of our invention, what we claim as new is—

1. In combination with the lengthened pinion I and the mechanism driven by the same, the shaft E having a uniform size within and outside of its bearings, and the spur-gear F attached to said shaft, substantially as and for the purpose specified.

2. The construction and relative arrangement within the supporting-frame of the shafts E, G, and K, the gear-wheels F and H, the pinions I and L, and the band-pulley M, substantially as and for the purpose shown.

In testimony that we claim the foregoing we have hereunto set our hands.

W. R. WRIGHT.
DAVID A. WARNOCK.

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