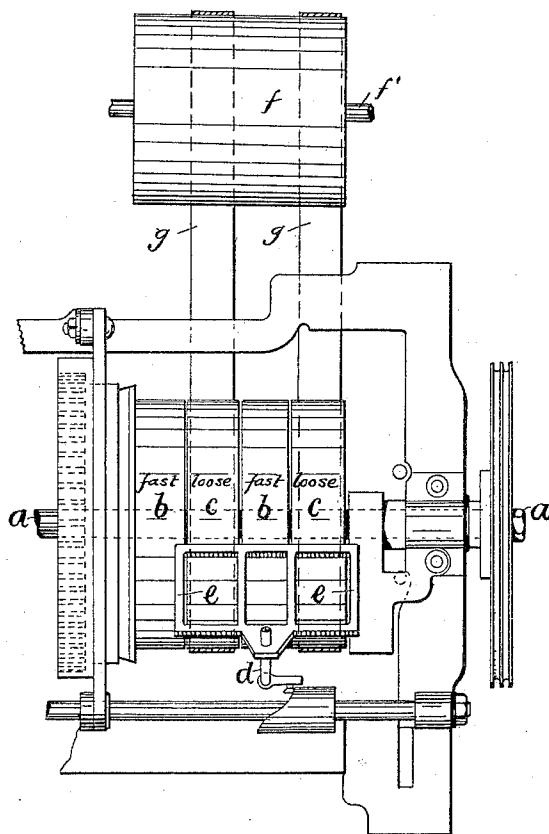


(No Model.)

J. MOORHOUSE & J. ASHTON.
DRIVING GEAR FOR SPINNING MULES, &c.

No. 452,848.

Patented May 26, 1891.



Witnesses:

Edwin P. Clarkson
J. Matham

INVENTORS.

INVENTORS.
Joseph Moorhouse, &
John Ashton.
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BY THEIR ATTORNEY

UNITED STATES PATENT OFFICE.

JOSEPH MOORHOUSE AND JOHN ASHTON, OF SHAW, NEAR OLDHAM,
ENGLAND.

DRIVING-GEAR FOR SPINNING-MULES, &c.

SPECIFICATION forming part of Letters Patent No. 452,848, dated May 26, 1891.

Application filed July 28, 1890. Serial No. 360,199. (No model.) Patented in England August 4, 1886, No. 9,985.

To all whom it may concern:

Be it known that we, JOSEPH MOORHOUSE, mule-overlooker, and JOHN ASHTON, cotton-spinner, both subjects of the Queen of Great Britain and Ireland, residing at Shaw, near Oldham, in the county of Lancaster, England, have invented certain new and useful Improvements in Driving-Gear for Spinning Mules or Twiners, (for which we have obtained a patent in Great Britain, No. 9,985, dated August 4, 1886;) and we 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.

The object of this invention is to obviate the great wear and tear upon the counter-belts of mules or twiners in consequence of the width of such belts and the great power required to move them from the fast onto the loose pulleys, or vice versa.

According to our invention, instead of having a single wide strap, as heretofore, we employ two or more narrower straps and a corresponding number of fast and loose pulleys upon the shaft.

The accompanying drawing represents a plan view of so much of the head-stock of a mule as is necessary to explain our improvements, which are illustrated as applied thereto.

In carrying out our invention, instead of having a single pair of wide pulleys (fast and loose) upon the shaft *a* and driven by a single wide belt, (which, owing to its width, has been difficult to move to and fro and has resulted in great wear and tear upon the edge of the belt,) we employ two narrower fast and loose pulleys (marked *b b* and *c c*, respectively) mounted upon the same shaft *a*, and which are driven by a pair of belts *g* of correspondingly narrower width from a single drum *f* of the requisite diameter upon the counter-shaft *f'*, the strap-fork *d* in this case being arranged with a double head *e*, as illustrated, to move the two belts to and fro simultaneously. In this manner and with these narrower belts we obtain a better grip upon the pulleys than that afforded by the wide belt hitherto used,

while in practice it is also found that the driving is steadier, and that as these narrower belts only require to be moved to and fro a distance corresponding to the width of the fast pulleys, less power is required to move them and greater rapidity of change is also effected.

Instead of two sets of fast and loose pulleys being employed, as hereinbefore described and illustrated, it will be apparent that three or more sets might be so employed.

Although only hereinbefore described and illustrated as applied to a mule, it will be obvious that our improvements are equally applicable to twiners.

We wish it to be understood that we are well aware that a double pair of fast and loose pulleys have hitherto been sometimes used upon the shaft of a mule, but they have been driven at different speeds from different-sized pulleys on the counter-shaft and with a different object from that of our invention, and this we only mention to say that we make no claim to double pairs of pulleys when so mounted and driven at different speeds; but

What we do claim as our invention, and desire to secure by Letters Patent, is—

1. In a mule or twiner, the combination, with the counter-shaft and the driving-pulley secured thereon, of the shaft *a*, the fast pulleys *b*, the loose pulleys *c*, and a plurality of belts, whereby the said shaft *a* may be driven from the counter-shaft, substantially as set forth.

2. In a mule or twiner, the combination, with the counter-shaft and the driving-pulley secured thereon, of the shaft *a*, the fast pulleys *b*, the loose pulleys *c*, a plurality of belts, whereby the said shaft *a* may be driven from the counter-shaft, and a belt-shifter engaging with the said belts and adapted to move them simultaneously, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

JOSEPH MOORHOUSE.
JOHN ASHTON.

Witnesses:

WALTER GUNN,
SIDNEY WILSON.