

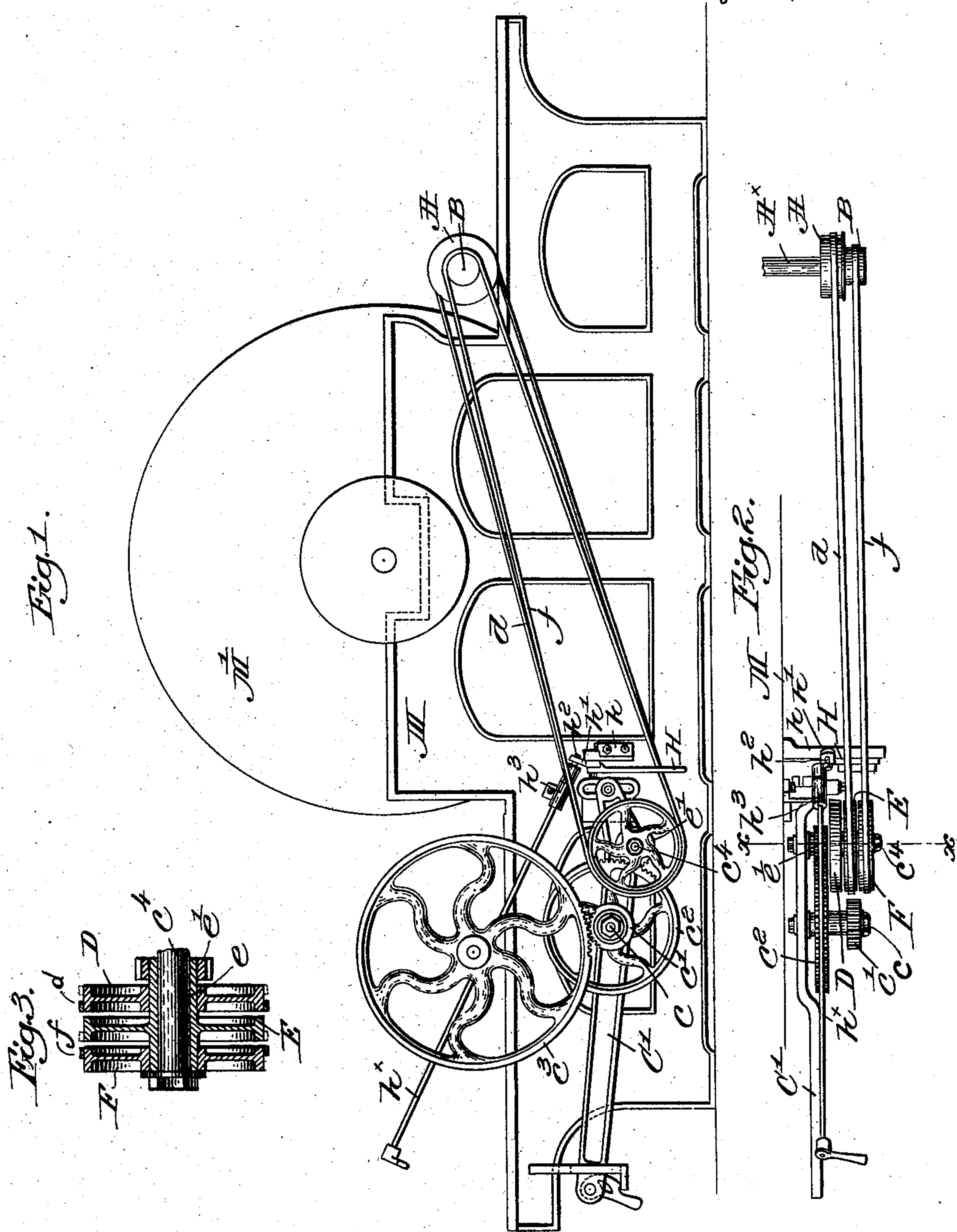
(No Model.)

W. HOPKINSON & R. TYACK.

DOFFER DRIVING MECHANISM FOR CARDING ENGINES.

No. 605,057.

Patented May 31, 1898.



Witnesses:  
 Fred S. Grunberg.  
 Thomas J. Drummond.

Inventors:  
 William Hopkins.  
 Richard Tyack.  
 by Crosby & Gregory attys.



# UNITED STATES PATENT OFFICE.

WILLIAM HOPKINSON AND RICHARD TYACK, OF ACCRINGTON, ENGLAND,  
ASSIGNORS TO THE HOWARD & BULLOUGH MACHINE COMPANY, LIMITED,  
OF ENGLAND.

## DOFFER-DRIVING MECHANISM FOR CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 605,057, dated May 31, 1898.

Application filed March 25, 1897. Serial No. 629,148. (No model.)

*To all whom it may concern:*

Be it known that we, WILLIAM HOPKINSON and RICHARD TYACK, subjects of the Queen of Great Britain, and residents of Accrington, in the county of Lancaster, England, have invented an Improvement in Doffer-Driving Mechanism for Carding-Engines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention relates to carding-engines, and more particularly to the driving mechanism for the doffer, whereby the speed of the latter may be changed from fast to slow, and vice versa, readily and easily without noise or vibration and without danger of breakage of the mechanism.

Inasmuch as any alteration in the speed of the doffer communicates a corresponding alteration to the speed of the feed and delivery rolls in usual manner, there is no change made in the weight of the sliver by the alteration in the speed of the doffer.

Figure 1, in side elevation, represents with sufficient clearness to be understood a carding-engine with our invention applied thereto. Fig. 2 is a partial top or plan view of the doffer-driving mechanism to be described, and Fig. 3 is an enlarged sectional view on the line  $x x$ , Fig. 2.

The main frame M, cylinder-casing M', the doffer-lever C', on which is secured a stud  $c$  to rotatably support a connected pinion  $c'$ , and gear  $c^2$  in mesh with the large gear  $c^3$  are and may be of usual and well-known construction in carding-engines. As herein shown, two pulleys A and B of different diameters are fast on the taker-in shaft  $A^x$ , the pulley A being shown as about twice the diameter of pulley B. A second stud  $c^4$  is secured to the doffer-lever C' and has rotatably mounted thereon a belt-pulley E, having a sleeve-like hub  $e$  (see Fig. 3) extended at each side thereof and provided at its inner end with a pinion  $e'$  in mesh with the gear  $c^2$ .

Loose pulleys D and F are mounted on the sleeve-like hub  $e$ , one at each side of the pulley E, said pulleys D and F being con-

nected with the pulleys A and B, respectively, by suitable driving-belts  $d$  and  $f$ , and as pulleys D and F are of the same diameter as pulley E the belts  $d$  and  $f$  may be shifted to cause either to engage the latter or fast pulley.

In Fig. 2 of the drawings the belt  $d$  is shown as on the pulley E, so that the doffer mechanism will be driven at the higher speed, while if the belts are shifted over to bring belt  $f$  on pulley E the doffer will be driven at slower speed—as, for instance, when piecing up a broken sliver.

The pulley A will, when effective, drive the doffer, feed-roller, and calender-rolls at full speed.

When desired, the belts may be shifted onto the loose pulleys D and F, so that the fast pulley E will remain entirely at rest.

The double-belt fork H is mounted to slide on a stand  $h$ , laterally extended from the side of the main frame M, the said fork having an upturned slotted ear  $h'$  to receive therein an eccentric pin or stud  $h^2$  on the end of the shipper-rod  $h^x$ , mounted to rock in a suitable bearing  $h^3$ . (Best shown in Fig. 2.)

From the foregoing it will be obvious that the doffer mechanism is fully controlled by an easily and readily operated device, so that the speed can be instantly varied without danger of breakage or disarrangement of the parts.

When it is desired to stop the doffer for stripping out, &c., the lever C' is dropped in usual manner, thereby disengaging the doffer-driving wheel  $c^3$  and rendering it easy to turn the doffer during the operation of stripping.

Our doffer-driving mechanism may, if desired, be readily used in connection with the sliver stop-motion referred to and illustrated in United States Patent No. 568,197, granted to Hitchon and Duckworth September 22, 1896.

Having fully described our invention, what we claim, and desire to secure by Letters Patent, is—

In a carding-engine, the doffer-lever, a stud fast thereon, a fast pulley rotatably mounted on said stud and provided with an extended sleeve-like hub having an attached pinion, the doffer connections between it and the pin-

ion attached to said fast pulley, and loose  
pulleys one at each side of said fast pulley  
and mounted rotatably on the hub thereof,  
combined with fast and slow speed driving-  
5 belts, and means to shift either of said belts  
from the loose pulleys to the fast pulleys.

In testimony whereof we have signed our

names to this specification in the presence of  
two subscribing witnesses.

WILLIAM HOPKINSON.  
RICHARD TYACK.

Witnesses:

ARTHUR C. HALL,  
JOHN W. THOMAS.



It is hereby certified that the assignee in Letters Patent No. 605,057, granted May 31, 1898, upon the application of William Hopkinson and Richard Tyack, of Accrington, England, for an improvement in "Doffer-Driving Mechanism for Carding-Engines," should have been described and specified as the *Howard & Bullough American Machine Company, Limited*, instead of "the Howard & Bullough Machine Company, Limited;" and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 14th day of June, A. D., 1898.

[SEAL.]

WEBSTER DAVIS,  
*Assistant Secretary of the Interior.*

Countersigned:

C. H. DUELL,  
*Commissioner of Patents.*