

(No Model.)

2 Sheets—Sheet 1.

E. & S. TWEEDALE & C. MILLS.

DRIVING APPARATUS FOR CARDING ENGINES.

No. 397,881.

Patented Feb. 12, 1889.

Fig. 1.

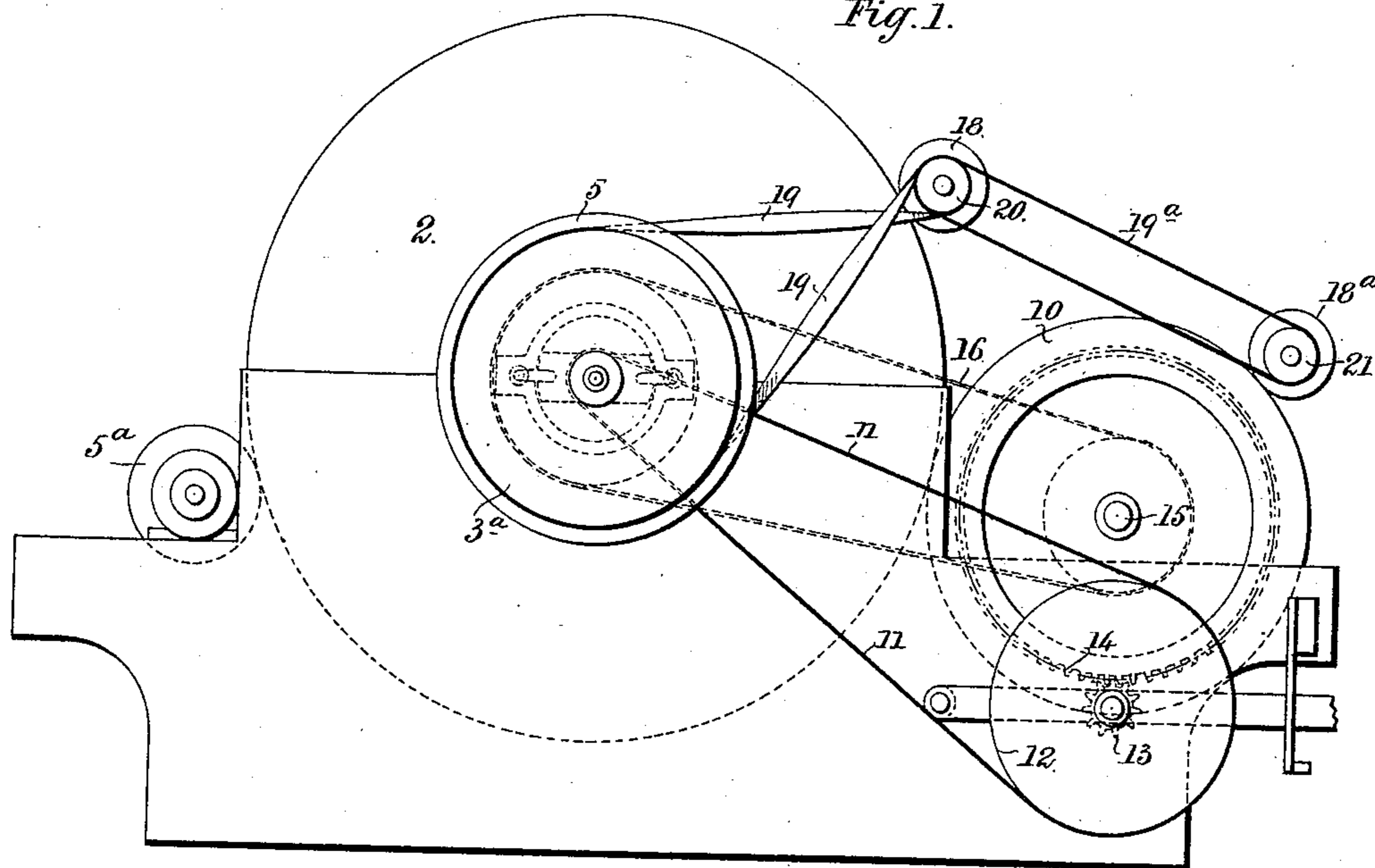
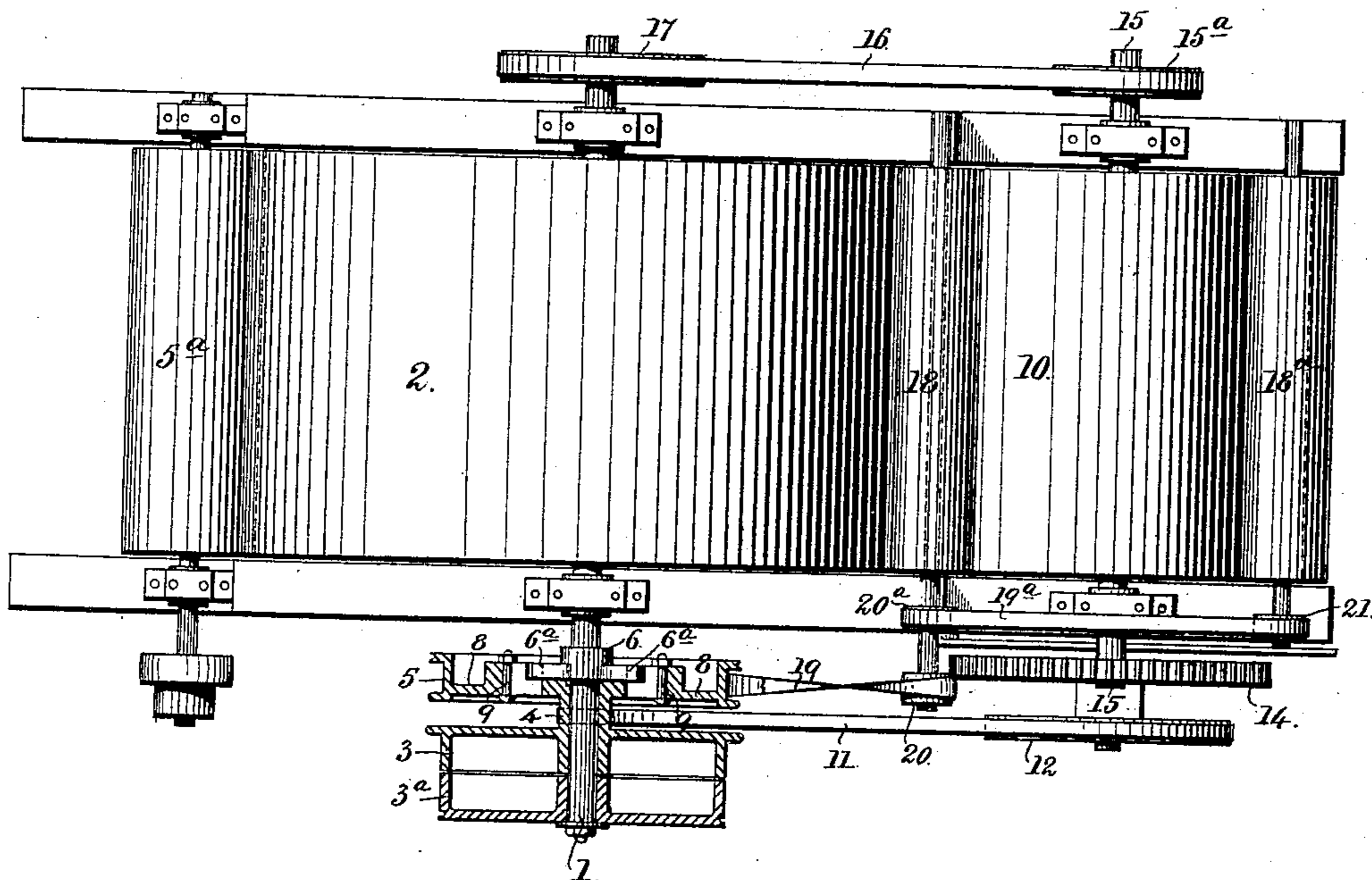


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 4.

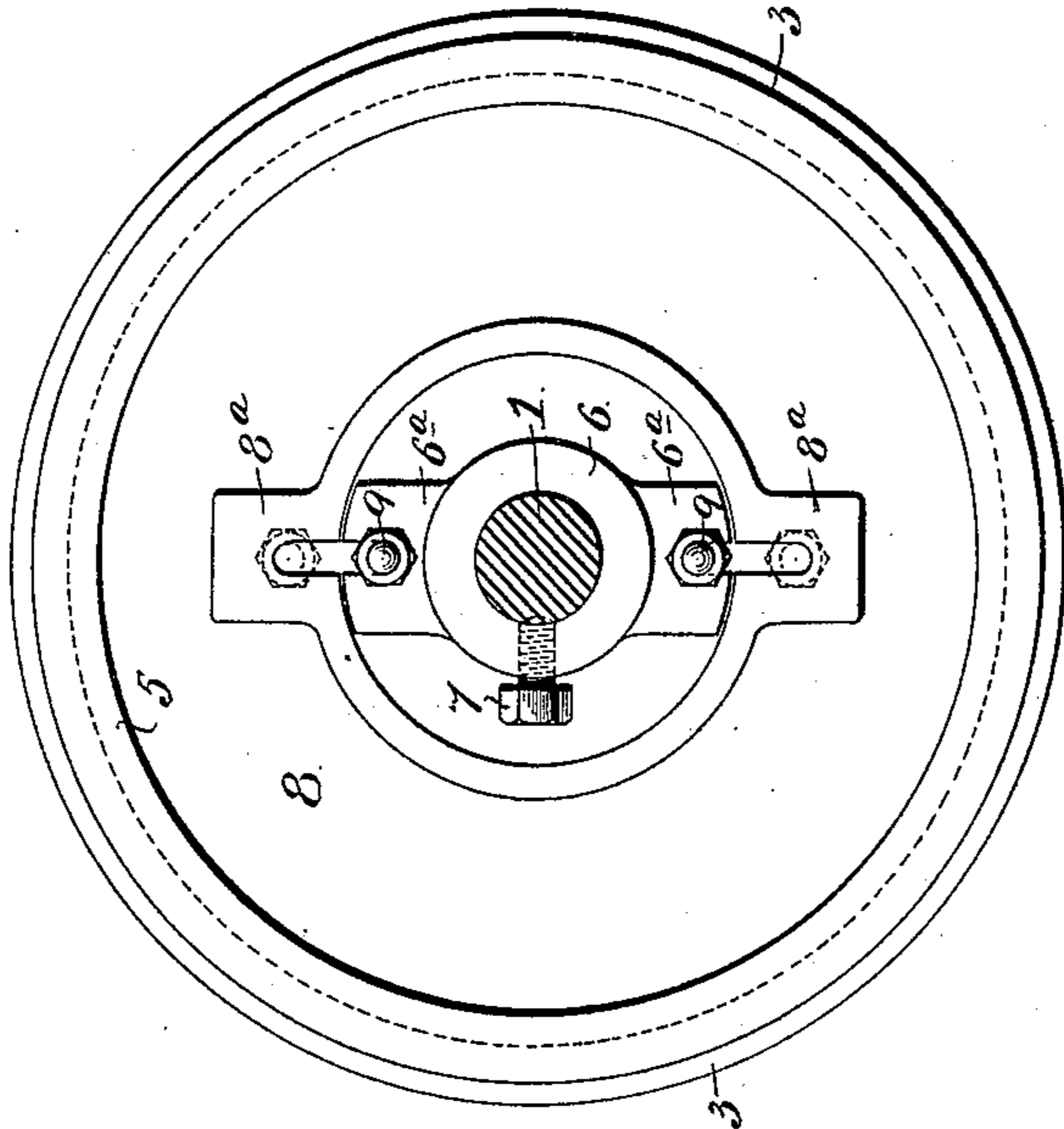
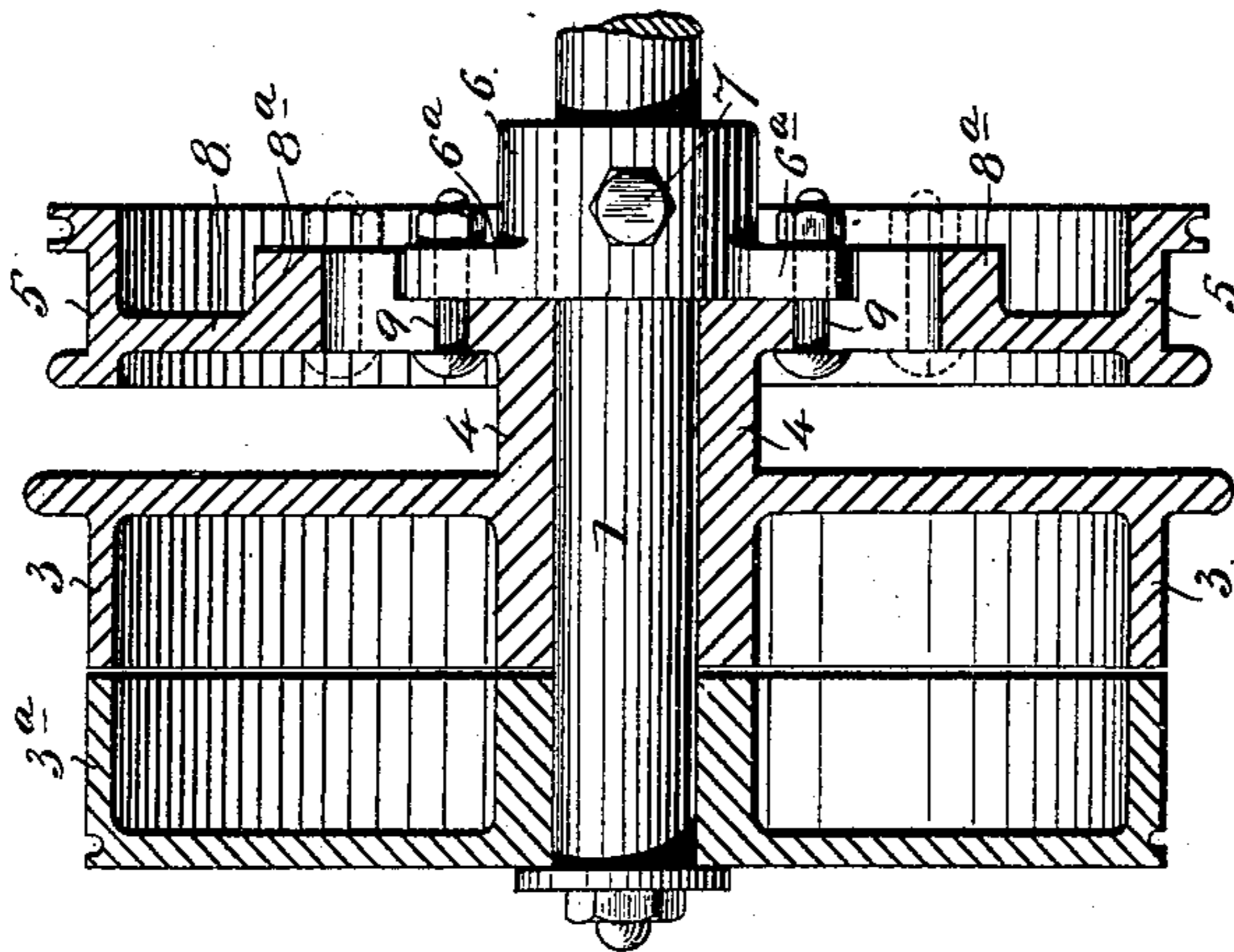


Fig. 3.



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UNITED STATES PATENT OFFICE.

EDMUND TWEEDALE, SAMUEL TWEEDALE, AND CHARLES MILLS, OF ACCRINGTON, COUNTY OF LANCASTER, ENGLAND, ASSIGNORS TO JOHN BULLOUGH, OF SAME PLACE.

DRIVING APPARATUS FOR CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 397,881, dated February 12, 1889.

Application filed July 9, 1888. Serial No. 279,383. (No model.) Patented in England April 27, 1886, No. 5,671.

To all whom it may concern:

Be it known that we, EDMUND TWEEDALE, SAMUEL TWEEDALE, and CHARLES MILLS, subjects of Her Majesty, the Queen of Great Britain, residing at Accrington, in the county of Lancaster, England, have invented a new and useful Improvement in the Driving Apparatus for Carding-Engines, (for which we have obtained a patent in Great Britain, No. 5,671, bearing date April 27, 1886,) of which the following is a specification.

The object of our invention is to give a slow motion to the main carding-cylinder and doffer of carding-engines during the process of grinding the cards. For this purpose we connect the ordinary main driving-pulley and the pulley that drives the "licker-in" by casting the two in one part and by so arranging the same that when it is desired to decrease the speed of the cylinder and doffer for grinding purposes the driving takes place from a boss on said combined pulleys, the strap passing to a pulley for operating the doffer through slow-motion gearing, a pulley on the other end of the doffer-shaft driving the cylinder at a slow speed by a strap passing to a pulley on the opposite end of its shaft. The pulley that drives the licker-in is employed for a strap which drives the grinding-cylinders, as will be hereinafter described.

To clearly explain the nature of our invention, reference is made to the accompanying drawings, in which—

Figure 1 is an end elevation of sufficient of a carding-engine to illustrate our invention. Fig. 2 is a plan of the same, parts being in section. Fig. 3 shows in section, on an enlarged scale, the combined pulleys, a small portion, however, being in elevation. Fig. 4 is an end elevation of the same, looking at it from the right-hand side.

The numeral 1 represents the driving-shaft of the cylinder 2, carrying a loose pulley, 3^a, and the pulley 3, which is cast in one piece with the pulley 5, a boss supplemental pulley or neck, 4, serving to connect the same. The pulley 5 drives the licker-in 5^a during the ordinary working of the machine.

On the shaft 1 is secured, by a set-screw, 7, a boss or collar, 6, having the slotted wing-

pieces 6^a 6^a. This boss 6 is brought up close to the web 8 of the pulley 5, upon which are the projections 8^a 8^a, which have therein slots corresponding with those on the wing-pieces 6^a. When the shaft 1 is to drive the cylinder 2 in the usual way at its ordinary working-speed, the bolts 9 9 are in the position shown in full lines in Figs. 3 and 4, thereby securing the combined pulleys to the fixed boss 6.

In order to obtain the requisite decrease of speed, the bolts 9 9 are shifted from the position shown in solid lines to the position shown in dotted lines into the slots of the projections 8^a, (where they are convenient of access when required again,) leaving the combined pulleys 3 and 5 loose upon the shaft 1. A strap, 11, Figs. 1 and 2, is then passed over the boss 4, which is thus utilized as a driving-pulley for operating the pulley 12, which drives the doffer 10 through the gear-wheels 13 14, as shown. The slow motion of the doffer so obtained is utilized for imparting a slow motion to the main cylinder 2 through the pulley 15^a at the opposite end of the doffer-shaft 15, the strap 16 of which drives the pulley 17 on the shaft of the cylinder 2.

The grinding-roller 18, for grinding the cards on the cylinder 2, is driven by a strap, 19, which passes from the pulley 5 to the pulley 20 of said roller, while the grinding-roller 18^a, for grinding the cards on the doffer 10, is driven by a strap, 19^a, from a pulley, 20^a, on the same shaft and somewhat to the rear of the pulley 20, said strap passing to the driving-pulley 21 of the grinding-roller 18^a. In this way both the cards on the cylinder and the cards on the doffer are ground simultaneously. It will be evident though that the grinding-rollers 18 or 18^a may be operated separately for grinding the teeth on the cylinder alone or the teeth on the doffer alone.

It will be understood that during the grinding of the cards the licker-in 5^a is not in operation; hence the pulley 5 is available for use as described.

What we claim, and desire to secure by Letters Patent, is—

1. In combination, the cylinder 2, the main driving-shaft 1, a pulley, 3, a detachable connection between said pulley and the main

shaft 1, said pulley having a supplemental pulley, 4, a pulley, 17, rigidly secured to the shaft 1, and the intermediate driving-connections between the pulleys 4 and 17, whereby the main shaft and cylinder may be driven indirectly and at a slow rate of speed through the pulleys 4 and 17 and intermediate connections, substantially as described.

2. In combination, the main shaft, the pulleys 3 and 5, with the connecting boss or pulley between them, a fixed collar or boss, 6, on the main shaft having slots, and the movable bolts 9, the pulley 5 being slotted to receive the bolts, substantially as described.

3. In combination, the main shaft, the cylinder 2, the pulley 3, a detachable connection between said pulley and the main shaft, a supplemental pulley, 4, the doffer-shaft 15, and driving-connections between the doffer-shaft and the pulley 4 and between the doffer-shaft and the main shaft 1, substantially as described.

4. In combination, the main shaft, the cylinder 2, the pulleys 3 and 5, a detachable connection between said pulleys and the main shaft, and a supplemental pulley, 4, the doffer-shaft 15, driving-connections between the doffer-shaft and the pulley 4 and between the doffer-shaft and the main shaft 1, the roller 18, and belt 19, substantially as described.

5. In combination, the main shaft 1 and shaft 15, the pulleys 3 4 5, a detachable connection between said pulleys and the main shaft, the belt 11, the pulley 12, gear-wheels 13 14, the grinding-roller 18, the belt 19, the pulleys 15^a and 17, and the belt 16, substantially as described.

6. In combination, the main shaft, the cylinder 2, the pulleys 3, 4, and 5, a detachable connection between said pulleys and the main shaft, a pulley, 17, fixed on the main shaft, the doffer-shaft and doffer, connections between the pulleys 4 and 17 and the doffer-shaft, the grinding-rollers 18 and 18^a, and the belts 19 and 19^a, substantially as described.

In witness whereof we have hereunto signed our names in the presence of two subscribing witnesses.

EDMUND TWEEDALE.
SAMUEL TWEEDALE.
CHARLES MILLS.

Witnesses:

ARTHUR C. HALL,
ALBERT E. HALL.

Witnesses to the signature of Charles Mills:

C. S. JONES,
D. C. ATHAIDE.