

(No Model.)

2 Sheets—Sheet 1.

E. & S. TWEEDALE & J. SMALLEY.
MECHANISM FOR DRIVING TRAVELING FLATS.

No. 570,829.

Patented Nov. 3, 1896.

Fig. 1.

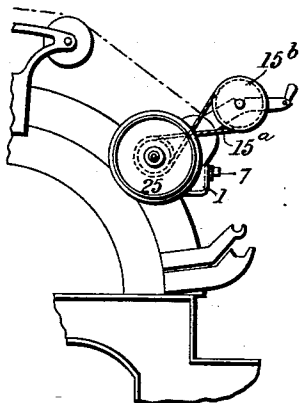
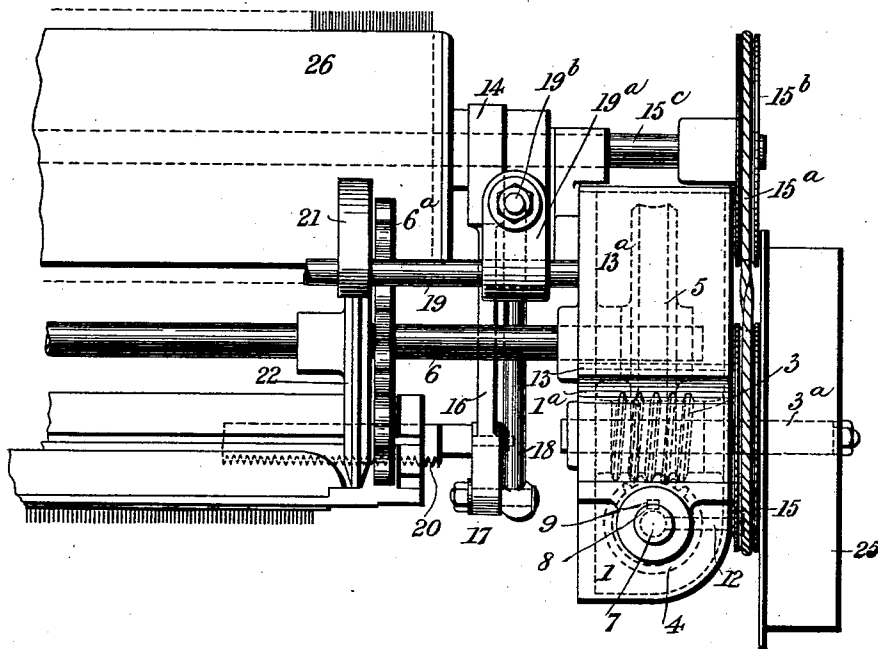


Fig. 2.



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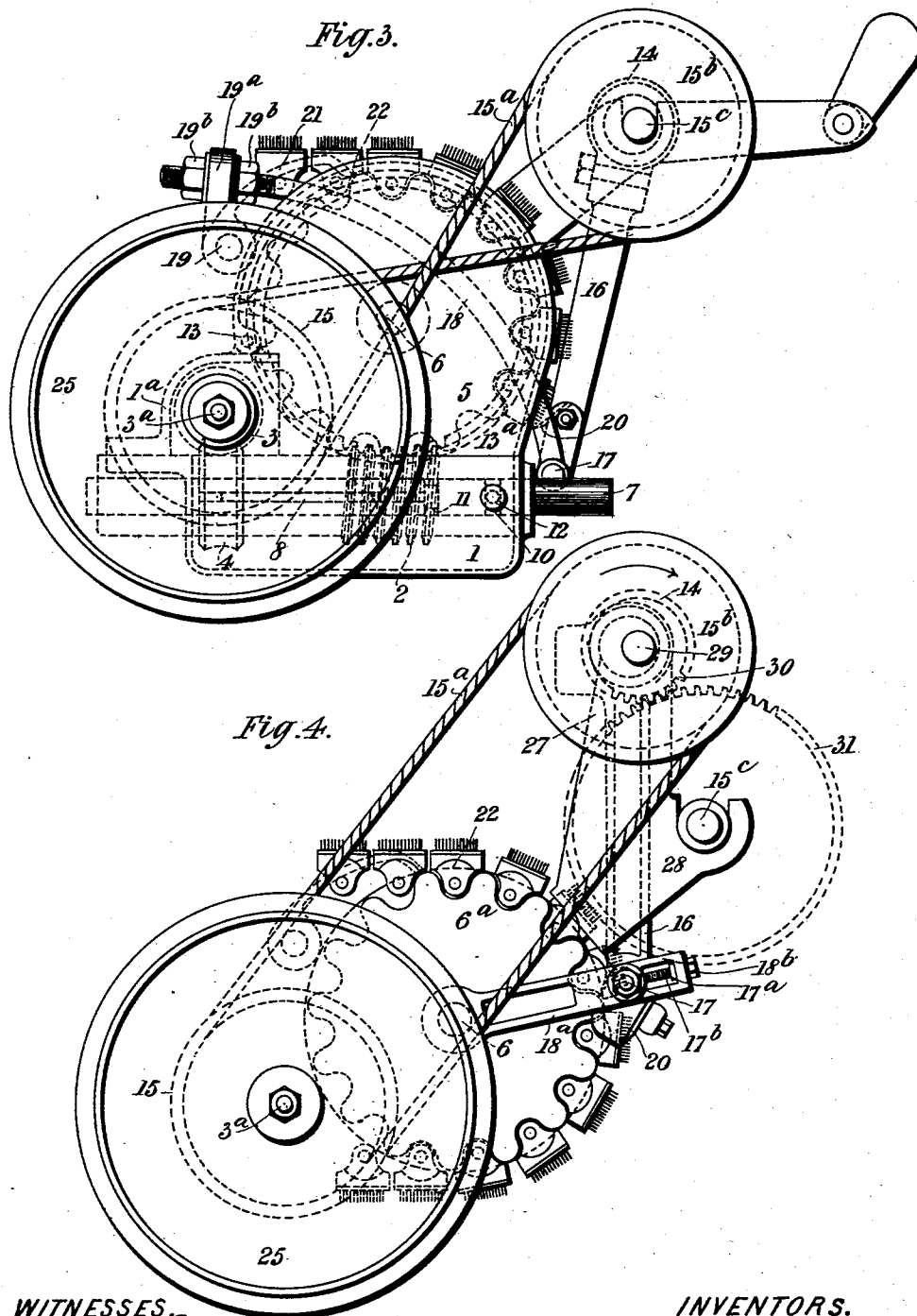
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UNITED STATES PATENT OFFICE.

EDMUND TWEEDALE, SAMUEL TWEEDALE, AND JOSEPH SMALLEY, OF
MANCHESTER, ENGLAND.

MECHANISM FOR DRIVING TRAVELING FLATS.

SPECIFICATION forming part of Letters Patent No. 570,829, dated November 3, 1896.

Application filed April 30, 1896. Serial No. 589,736. (No model.)

To all whom it may concern:

Be it known that we, EDMUND TWEEDALE, SAMUEL TWEEDALE, and JOSEPH SMALLEY, subjects of Her Majesty the Queen of Great Britain, residing at Castleton, Manchester, in the county of Lancaster, England, have invented a certain new and useful Improvement in Carding-Engines, of which the following is a specification.

10 This invention relates to an improvement in the mechanism employed for driving the flats of flat-carding engines and appliances connected with such mechanism.

15 The object of the invention is to insure efficient lubrication of the worms and worm-wheels of the flat-driving shaft, to protect the same from dust and dirt, and to allow of the parts being readily disconnected, so that the chain of flats can be turned by hand.

20 Referring to the accompanying drawings, Figure 1 is a side elevation of part of a flat-carding engine, showing the position thereon occupied by the said improvements. Fig. 2 is an end elevation of part of a flat-carding engine with the improvements applied thereto. Fig. 3 is a side elevation of Fig. 2. Fig. 4 is a similar view to Fig. 3, but showing the comb as operated by mechanism preferably adapted when the cleaning-brush is driven slowly, as is sometimes the case.

30 In carrying out our invention we inclose in a casing 1 a shaft 7, carrying a worm 2 and at its end a worm-wheel 4. At the end of the casing 1 and superposed on same is a further casing 1^a, which incloses a worm 3, carried by a stud 3^a, which also carries the driving-pulley 25.

40 Hinged at the point 13 to the casing 1^a is a further casing 13^a, which incloses a worm-wheel 5, which engages with the worm 2 and is carried by a shaft 6, which drives the star-wheel 6^a, over which the chain of flats pass. The casings prevent loose fibers and dirt accumulating on the parts they inclose.

45 The bottom of the casing 1 serves as a receptacle for oil and insures the parts being efficiently lubricated. On the shaft 7 for supporting the lower worm 2 and wheel 4 we form a key or float 8, a keyway 9 being formed in the worm 2 and wheel 4 for its reception. This shaft is arranged to slide in the worm 2

and wheel 4 and is provided with two annular grooves 10 11, cut in its circumference. A stop-piece or stud 12, passing through the casing, is provided to fit these grooves. When 55 the stop-piece is in one groove, 10, the worm 2 and wheel 4 are connected by the key or float 8, but when shaft 7 is drawn outward and the stop-piece 12 is put into the other groove, 11, the wheel 4 is disconnected from 60 the lower worm 2, and the shaft 6 and flats can be driven by the shaft 7, if a suitable handle is provided for it, through the medium of the worm 2 and worm-wheel 5.

When driving by power from the pulley 25, 65 the transmission takes place through worm 3, worm-wheel 4, worm 2, and worm-wheel 5. The stud 3^a also carries a pulley 15, which drives, through the rope 15^a, a pulley 15^b on the shaft 15^c of the brush-roller 26.

70 Upon the shaft 15^c we place eccentrics 14, one at each end of the shaft. Each of these eccentrics carries one end of a connecting-rod 16, the other end of the rod being connected at 17 to the curved lever 18, secured 75 by nuts 19^b to a bracket 19^a on the rocking shaft 19, that usually gives motion to the comb 20. By fixing the comb 20 a short distance from the lower ends of the eccentric-rods 16 the comb-blade partakes of a portion 80 of the motion of both the eccentrics and the levers from the rocking shaft, and thus causes the comb to pass nearer the flats on its downward stroke than it does on its upward stroke, and so enables the comb to be set closer to 85 the card-teeth without liability of damage being done to the wire on the flats.

When the brush-roller shaft 15^c is to be driven slowly, as is sometimes the case, the pulley 15^b is mounted on an extension 27 of 90 a bracket 28, Fig. 4, and drives through its shaft 29 a pinion 30, which in turn drives a spur-wheel 31 on the shaft 15^c, an open driving-rope 15^a being employed between the pulleys 15 and 15^c. In this case the eccen- 95 trics 14 for working the comb 20 are fixed on the quick-running shaft 29, which carries the pinion for driving the brush-shaft 15^c, so that the requisite quick motion for the comb is obtained. The eccentrics 14 being driven in 100 a reverse direction, it is necessary that the centers 17, or points where the connecting-

rods 16 are jointed to the levers 18^a, should be above the comb 20 instead of below it, so that the requisite motion of the comb 20 is obtained.

5 The levers 18^a may be pivoted on the star-wheel shaft 6, as shown, instead of being connected with the rocking shaft, as shown in Fig. 3.

10 To adjust the throw of the comb 20, a screw 17^a and nut 18^b are employed, the arrangement enabling the point 15 to be moved along the slot 17^b of the levers 18^a.

15 To prevent dust or dirt collecting or remaining on the periphery of the circular plates or disks 22, which carry the flats when being cleaned by the stripper-comb, we employ a weighted lever 21, loosely hung on the shaft 19, the tooth 21 of which rests on the periphery of the disk or plate 22 and acts as
20 a scraper on same.

What we claim is—

1. In a carding-machine, and in combination, the chain of flats, and a star-wheel for driving the same, a worm-wheel operating
25 said star-wheel, a worm driving said worm-wheel, a shaft carrying the worm, a long key on said shaft, a second worm-wheel also carried by said shaft, grooves for the key in both the worm and worm-wheel, whereby the shaft
30 may rotate with both worm and worm-wheel or when drawn out longitudinally may be used to rotate by hand the worm only, means

for holding the shaft in either position, a second worm which engages with the second worm-wheel and means for driving the latter worm substantially as described. 35

2. In a carding-engine, and in combination, the chain of flats, and a star-wheel for driving the same, a worm-wheel operating said star-wheel, a worm driving said worm-wheel, a shaft carrying the worm, a long key
40 on said shaft, a second worm-wheel also carried by said shaft, grooves for the key on both the worm and worm-wheel, whereby the shaft may rotate with both worm and worm-wheel
45 or when drawn out longitudinally may be used to rotate by hand the worm only, means for holding the shaft in either position, a second worm with which engages the second worm-wheel, means for driving the latter
50 worm and a casing covering both of the worms and their worm-wheels and adapted to contain lubricating material substantially as described.

In testimony whereof we have hereunto set
55 our hands in the presence of two subscribing witnesses.

EDMUND TWEEDALE.
SAMUEL TWEEDALE.
JOSEPH SMALLEY.

Witnesses:

WALTER BRIERLEY,
FREDERICK A. VERITY.