(No Model.) 3 Sheets—Sheet 1.

# B. A. DOBSON.

## MECHANISM FOR VIBRATING THE FLY OR DOFFER COMB OF CARDING ENGINES.

No. 280,805. Patented July 10, 1883.

FIG. 2.

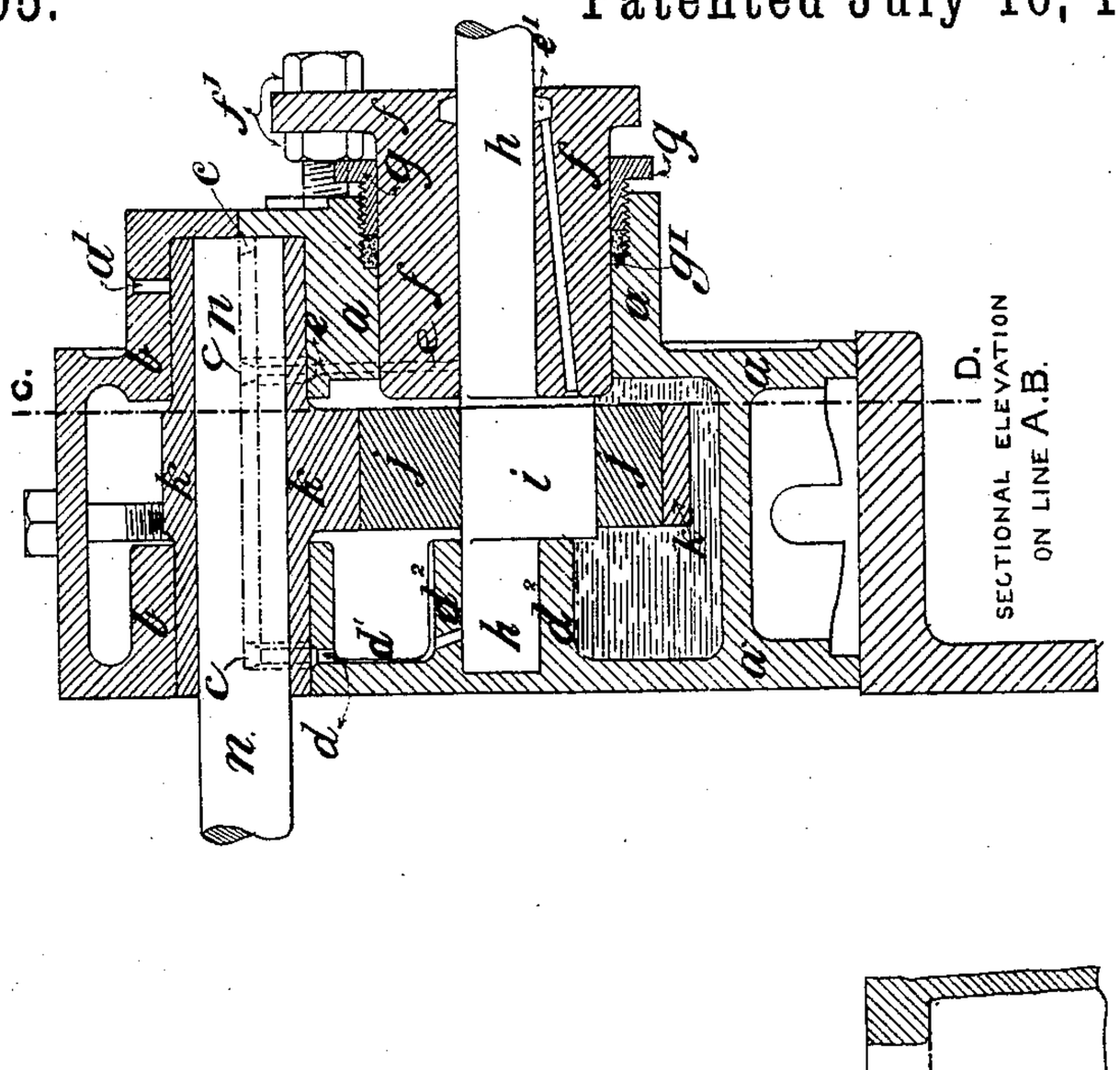
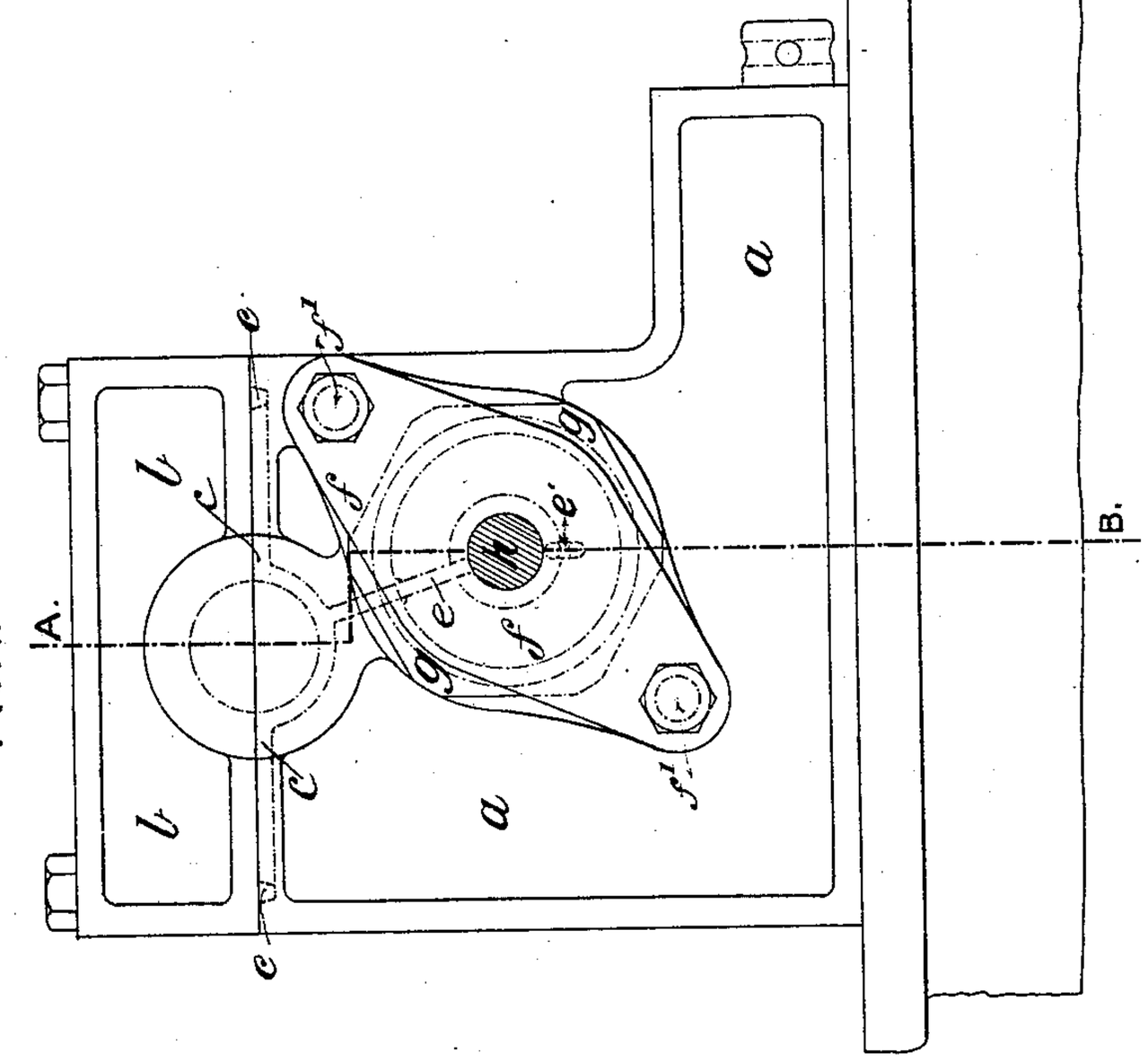



FIG. 1.




Witnesses.

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(No Model.) 3 Sheets—Sheet 2.

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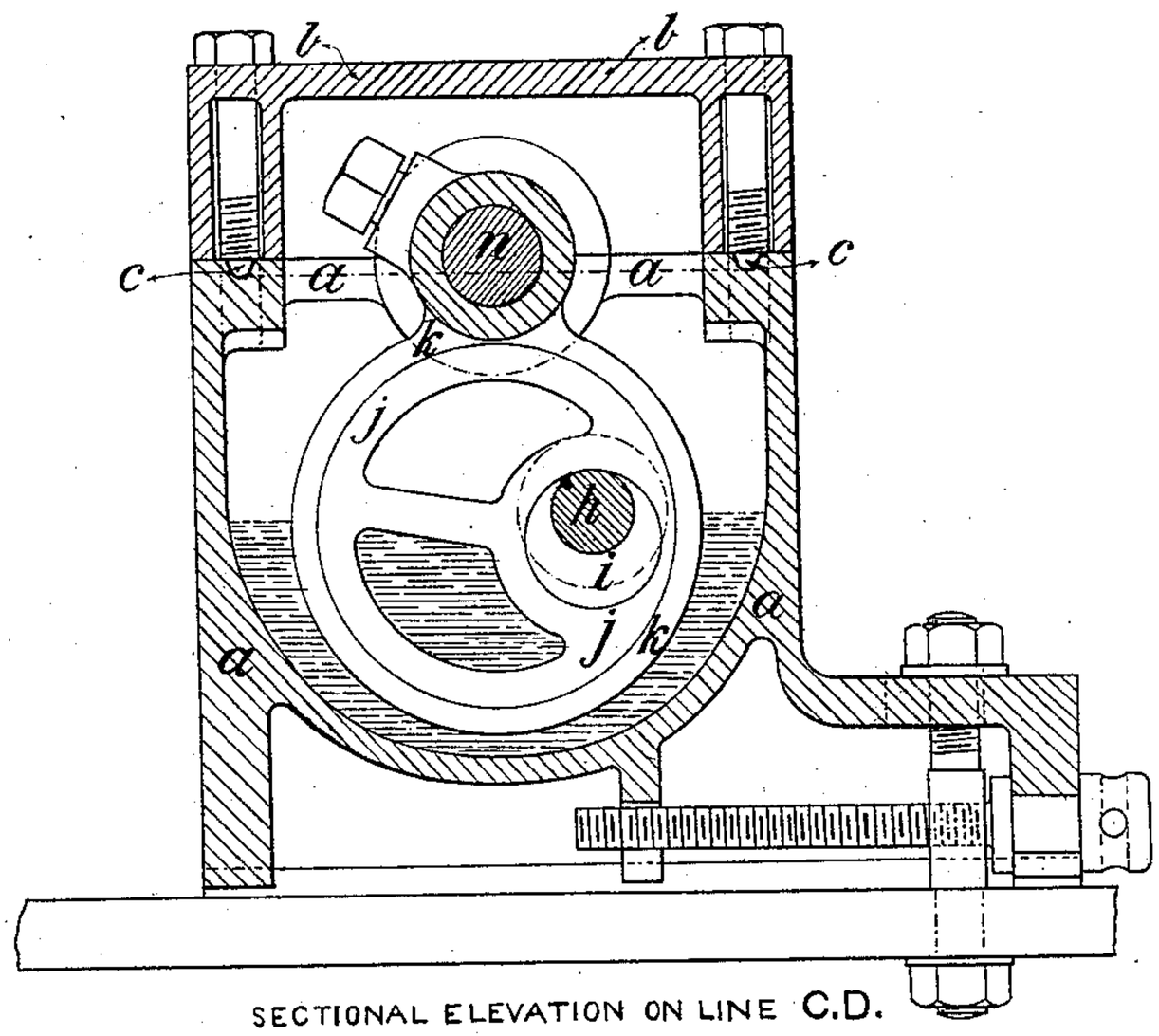
## MECHANISM FOR VIBRATING THE FLY OR DOFFER COMB OF CARDING ENGINES.

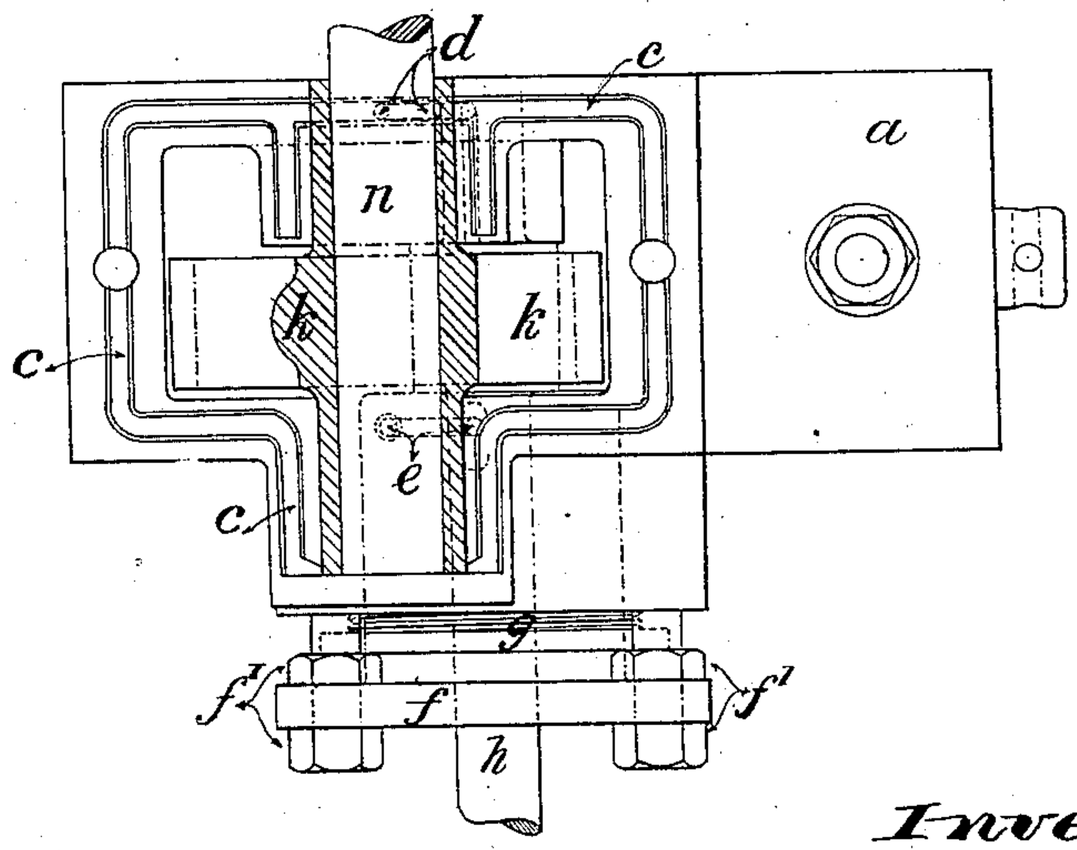
No. 280,805. Patented July 10, 1883.

FIG. 3.




SECTIONAL ELEVATION ON LINE C.D.

FIG. 4.




Witnesses

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(No Model.)

3 Sheets—Sheet 3.

# B. A. DOBSON.

## MECHANISM FOR VIBRATING THE FLY OR DOFFER COMB OF CARDING ENGINES.

No. 280,805. Patented July 10, 1883.

FIG. 5.

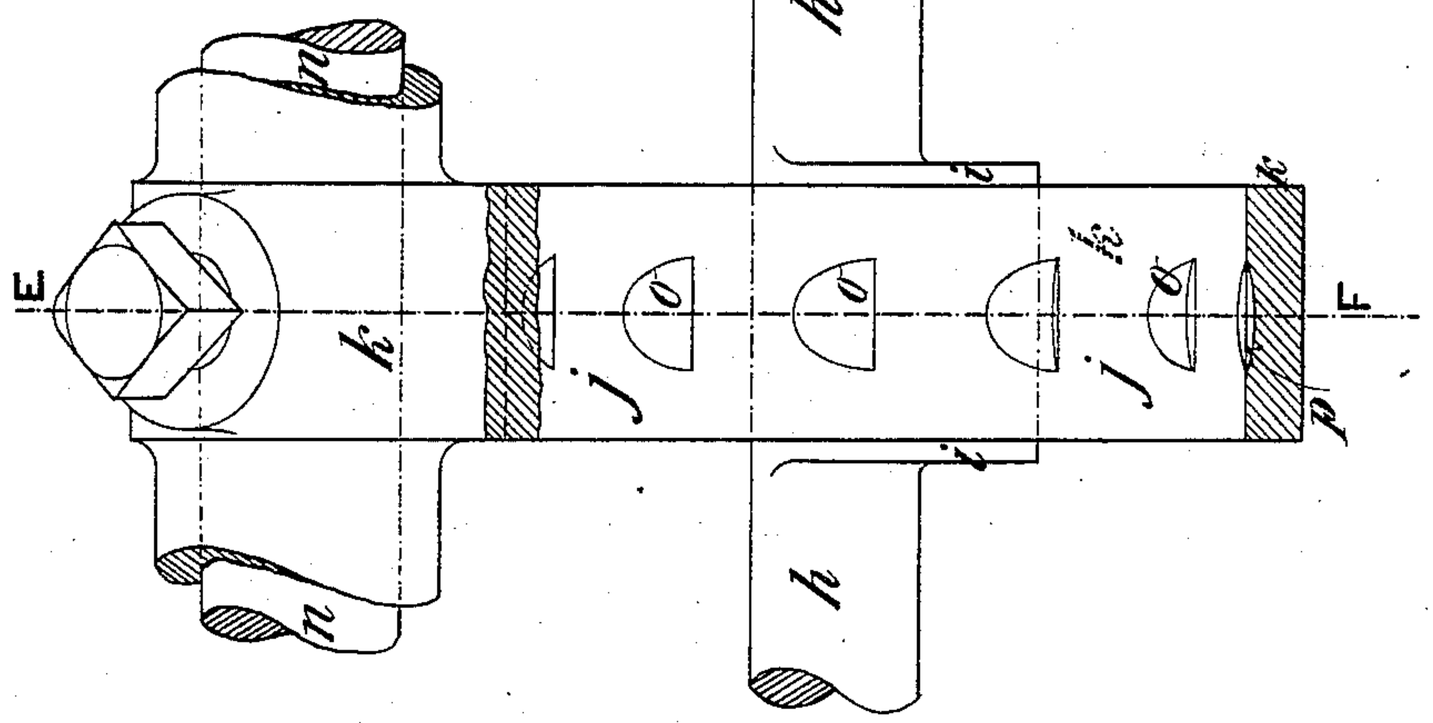
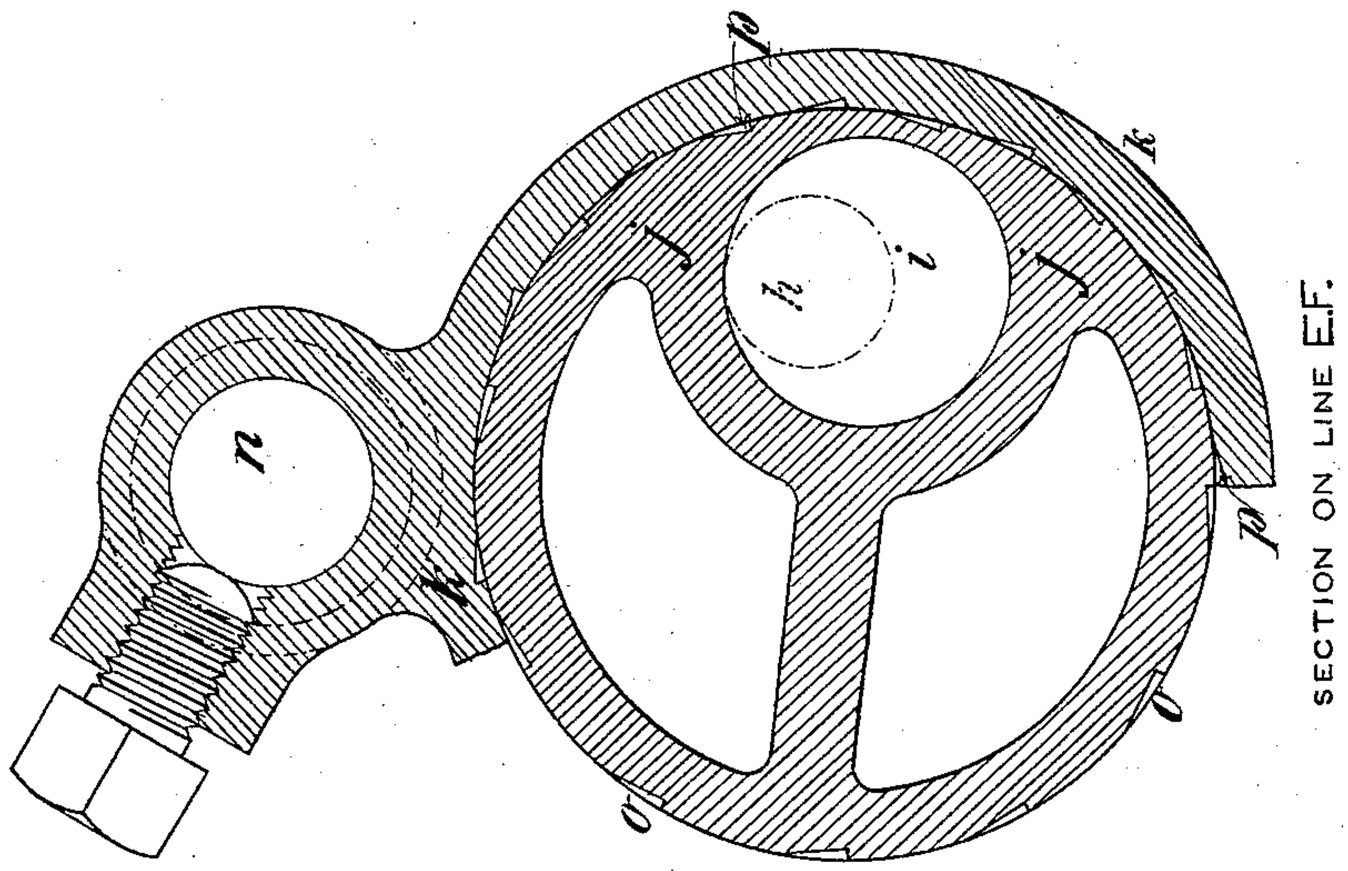



FIG. 6.




SECTION ON LINE E.F.

Witnesses.

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Robert Everett,

Inventor.

Benjamin A. Dobson
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Attorney

# UNITED STATES PATENT OFFICE.

BENJAMIN A. DOBSON, OF BOLTON, COUNTY OF LANCASTER, ENGLAND.

## MECHANISM FOR VIBRATING THE FLY OR DOFFER COMBS OF CARDING-ENGINES.

SPECIFICATION forming part of Letters Patent No. 280,805, dated July 10, 1883.

Application filed November 18, 1882. (No model.) Patented in England August 2, 1882, No. 3,668, and in France October 24, 1882, No. 151,719.

*To all whom it may concern:*

Be it known that I, BENJAMIN ALFRED DOBSON, machine-maker, of Bolton, in the county of Lancaster, England, have invented certain new and useful Improvements in Mechanism for Vibrating the Fly or Doffer Combs of Carding-Engines, (for which I have obtained a patent in Great Britain, No. 3,668, bearing date August 2, 1882,) of which the following is a specification.

My invention relates to machinery for vibrating the fly or doffer combs of carding-engines; and the objects of my improvements are to obtain a more efficient mechanism for operating such fly or doffer comb, and to lubricate said mechanism. I attain these objects by the apparatus illustrated in the accompanying three sheets of drawings, in which—

Figure 1 is an elevation of my improved mechanism for operating the doffer-comb of a carding-engine. Fig. 2 is a sectional elevation on the line A B, Fig. 1. Fig. 3 is a sectional elevation on the line C D, Fig. 2. Fig. 4 is a plan of Fig. 3, partly in section. Fig. 5 is an enlarged view of the eccentrics *i* and *j* and the lever *k*, with part of the lever *k* removed in order to show the recesses *o* and *p* for oil in *j* and *k;* and Fig. 6 is a section of Fig. 5 on the line E F.

Similar letters refer to similar parts throughout the several views.

On Figs. 1, 2, 3, and 4, *a* is the supporting case or frame, made with the side next to the doffer perfectly plane, so that there are no ledges or projections of any description for the dust or fly to rest on, as is the case in frames of the ordinary construction.

The cover or cap *b* is accurately fitted and secured by screws to the frame or case *a*, which in practice is partly filled with oil. The level of the oil should be about the center of the shaft *h*, for the better lubrication of the working parts. After being filled to this level, the cover *b* is fastened on and more oil is introduced, when required, at *a'*. (See Fig. 2.) When the mechanism is working, the speed at which it runs causes the oil to be thrown in all directions. The oil runs down the sides of the cap *b*, and some may ooze out at the joint between the frame *a* and cap *b*, (see Fig. 3;) but to prevent it escaping from the frame the channel *c* is cut partly round the four sides of the joint of the frame *a* and cap *b*, as shown in Figs. 1, 2, 3, and 4. The channel *c* is connected to the holes or channels *d* and *e* (see Figs. 2 and 4) communicating with some of the working parts. The oil, as it flows down the hole *d*, runs along the channel *d'*, cut in the side of the frame *a*, extending to the bearing $d^2$, and lubricates that end of the shaft *h*. The channel *e* conducts oil from the channel *c* through part of the frame *a* and an oil-hole in the bush *f* onto the shaft *h*, and its course is clearly shown in Figs. 1 and 2.

The bush *f*, that forms a bearing for the driving-shaft *h*, is secured to the frame by set-screws *f'*, by which it may be adjusted. A nut, *g*, screws into the frame *a* and presses upon a ring of asbestus, *g'*, or other substance. The lateral expansion of the said ring of asbestus *g'* consequent upon the screwing up of the nut *g* prevents the exuding of the oil from between bush *f* and casing *a*. The bush *f* is provided with an annular recess and passage, *e'*. This passage conducts away the oil that escapes from between said bush and shaft *h*. The shaft *h* is driven by the ordinary band-pulley. On this shaft is secured the eccentric *i*, which is fitted and revolves in an eccentric, *j*. The eccentric *j* does not revolve, but has an oscillating or to-and-fro motion. It is fitted and works loosely in a lever, *k*, secured to the shaft *n*, which carries the doffer-comb. The lever *k* has a long boss, which is fixed on the shaft *n* and moves with it in suitable bearings formed in the frame *a* and cover *b*. When the shaft *h* and eccentric *i* revolve, a reciprocating motion is given to the eccentric *j*, which works loosely in and moves the lever *k*, secured to the shaft *n*. A reciprocating motion is thus imparted to the shaft *n*, which carries the doffer-comb. The said oscillating eccentric *j* serves to convey motion from the eccentric *i* to the lever *k* on shaft *n*.

In the surface of the working parts of the eccentric *j* and the lever *k*, I make grooves or recesses *o* and *p*, respectively, as shown in Figs. 5 and 6. On reference to these figures (which are drawn on an enlarged scale on purpose to show the shape of the grooves or re-

cesses) it will be seen that the grooves are not cut in the same direction all the way round the eccentric *j* and the lever *k*, but in opposite directions. If an imaginary vertical line be drawn through the center of the eccentric *j* when in the position shown in Fig. 6, it will be seen that the two lowest grooves or recesses have each their deepest part nearest to the imaginary vertical line, one on each side of it, and that they taper gradually upward. The remaining grooves in the working-surface on each half of the eccentric *j* are cut, respectively, in the same direction as the two lowest grooves already described, and as shown in Fig. 6. The grooves or recesses in the working-surface of the lever *k* correspond with those in the eccentric *j* in shape, size, and direction. The oil in the frame fills the recesses in the lower portion of the eccentric *j* and lever *k*, and when at work the recesses in the eccentric *j* convey some oil into the recesses in the lever *k*, the lower or deeper part of each recess taking the oil from the recess next below it in the surface which works against it.

By the use of the eccentrics *i* and *j*, in combination with the lever *k*, links, cranks, and joint-pins and sliding bars are all dispensed with, and excessive wear and tear and knocking of joints are avoided, and ample wearing-surfaces and great durability are secured. The motion of the eccentric *j*, which gives a reciprocating motion to the lever *k*, makes it very easy for the eccentric *i* to perform its work. The eccentric *j* is also self-oiling, as before explained.

What I claim as my invention, and desire to secure by Letters Patent of the United States, is—

1. The combination of the shaft *h*, eccentric *i*, and eccentric *j* with the lever *k* and shaft *n*, substantially as herein shown and described.

2. The eccentric *j*, provided with grooves *o*, in combination with the lever *k*, provided with grooves *p*, substantially as and for the purpose set forth.

BENJAMIN ALFRED DOBSON.

Witnesses:
CHARLES A. BARLOW,
HERBERT R. ABBEY.