No. 822,591. PATENTED JUNE 5, 1906.

J. F. DOWDING.

MILLING CUTTER.

APPLICATION FILED FEB. 27, 1905.

3 SHEETS—SHEET 1.

Fig. 1.

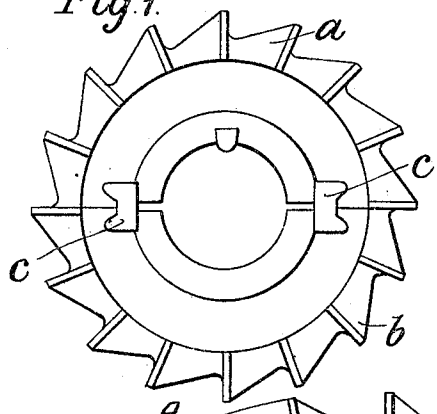


Fig. 2.

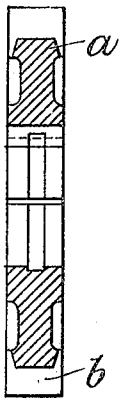
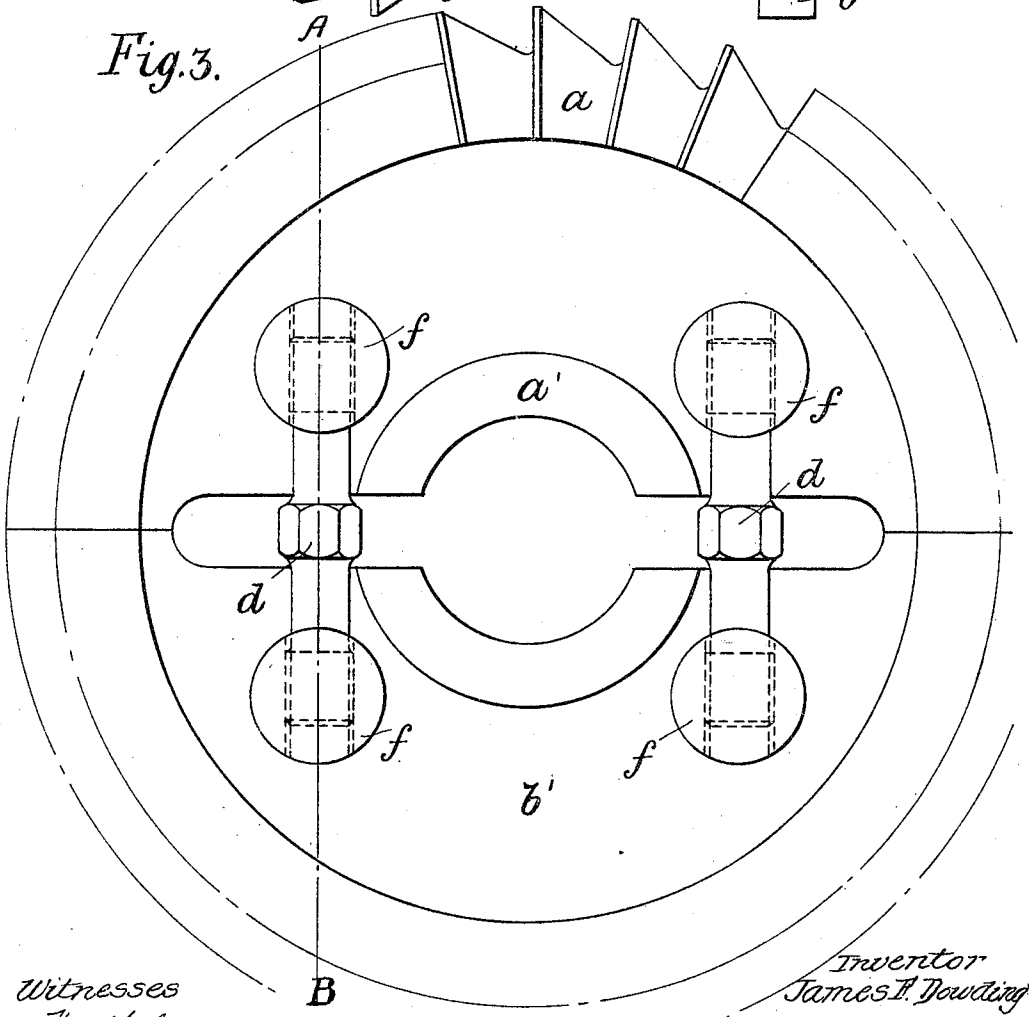


Fig. 3.



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3 SHEETS—SHEET 2.

Fig. 7.

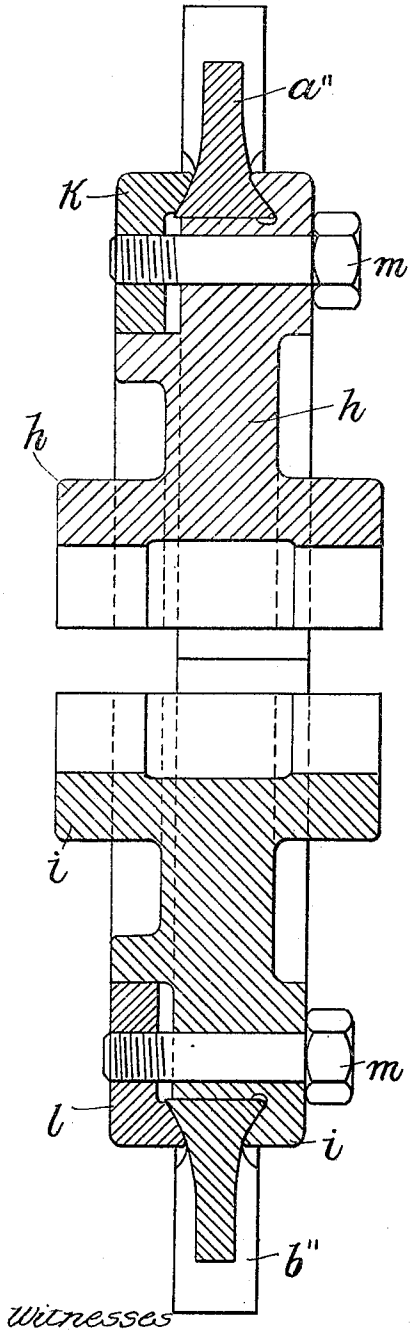


Fig. 4.

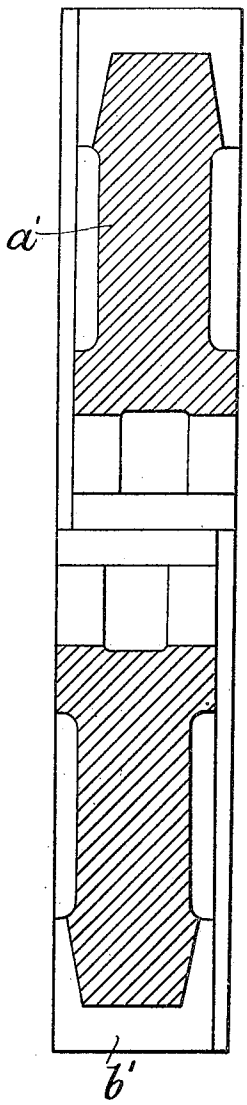


Fig. 5.

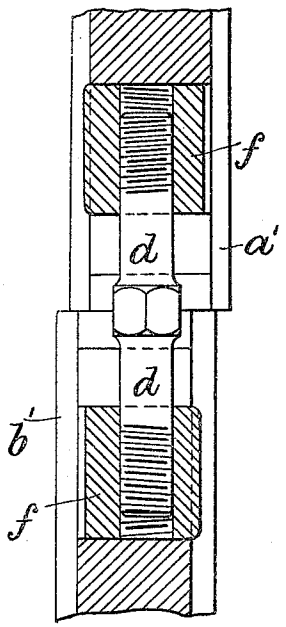
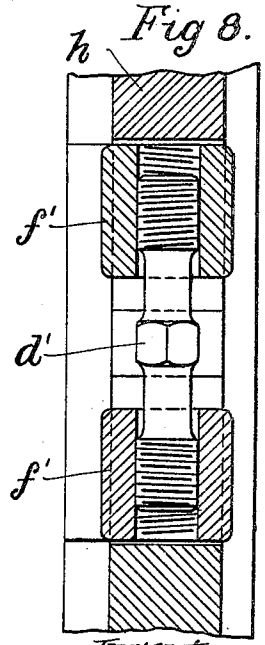


Fig 8.



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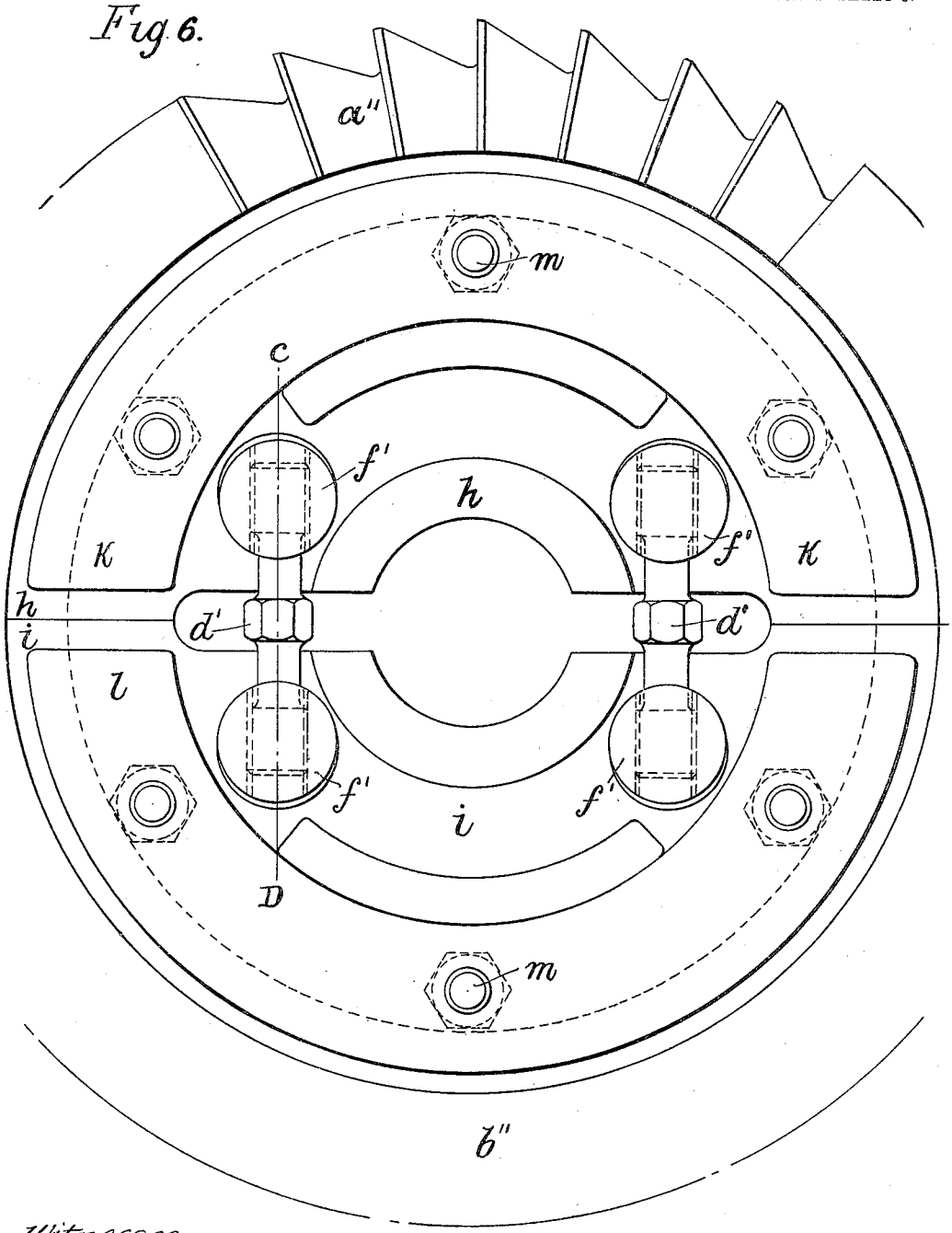
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3 SHEETS—SHEET 3.

Fig. 6.



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UNITED STATES PATENT OFFICE.

JAMES FRANCIS DOWDING, OF MANCHESTER, ENGLAND.

MILLING-CUTTER.

No. 822,591. Specification of Letters Patent. Patented June 5, 1906.

Application filed February 27, 1905. Serial No. 247,598.

To all whom it may concern:

Be it known that I, JAMES FRANCIS DOWDING, a subject of the King of Great Britain, residing at 11 Beech Range, Levenshulme, Manchester, in the county of Lancaster, England, have invented new and useful Improvements in Milling-Cutters, of which the following is a specification.

My invention relates to the cutters employed in milling-machines; and the chief object of my improvements is to construct such cutters in segmental parts so that the cutting portions can be put on or removed from their mandrel without disturbing or removing the mandrel from the machine-tool.

In the accompanying three sheets of drawings, Figure 1 is a side elevation, and Fig. 2 is a transverse section, of a plain or surfacing milling-cutter made in two parts divided across its axis and secured together according to my invention. Fig. 3 is a side elevation, Fig. 4 a transverse section taken through the center of Fig. 3, and Fig. 5 a transverse section taken on the line A B, Fig. 3, of a side and face split milling-cutter formed of several pieces according to my invention. Fig. 6 is a side elevation, Fig. 7 is a transverse section taken through the center of Fig. 6, and Fig. 8 a transverse section taken on the line C D, Fig. 6, of a milling-cutter made according to my invention.

In all the views the two portions of each milling-cutter upon which the cutting-teeth are formed are lettered *a* and *b*, *a'* and *b'*, and *a''* and *b''*. In Figs. 1 to 5 these parts form the main portions of the cutters, while in the other Figs. 6, 7, and 8 they are secured to variously-shaped blocks; but in every case the parts are so connected that the cutting portions can be set or adjusted in order to compensate for side wear and to vary the width of the cutting-surfaces without removing the cutters from their mandrel by simply moving one portion transversely while the other portion is kept stationary or moved in the opposite direction.

In the milling-cutter shown in Figs. 1 and 2 two specially-shaped keys *c* are fitted in suitably-shaped recesses formed in the parts *a* and *b*, so that the parts *a* and *b* can be fitted and secured upon and removed from a mandrel while in its working position and without disturbing the mandrel, this being accomplished by sliding one part transversely on the other part and on the keys *c*.

Figs. 3, 4, and 5 represent a milling-cutter formed in two parts fastened together by means of two screws *d*, each formed with right and left hand threads which screw into cylindrical nuts *f*, fitted in holes in the parts *a'* and *b'* forming the cutter, and when tightened up the parts *a'* and *b'* grip firmly upon the mandrel. In this construction also the halves of the cutter can be moved sidewise upon one another to vary the width of the cutting-surface. To so move the parts, the screws *d* are first loosened, and then when the parts are moved transversely the nuts *f* will slide in the holes, as shown in Fig. 5.

In Figs. 6, 7, and 8 the parts *a''* and *b''* are two segmental rims merely, and these rims are of very small section and are mounted upon two main or body segments *h* and *i*, connected together by right and left hand threaded screws *d'*. The segmental rims *a''* and *b''* are secured upon the body-segments *h* and *i*, respectively, between the outer flanges of *h* and *i* and two segmental rings *k* and *l*, which parts overlap the dovetail bases of the segmental rims *a''* and *b''* and are all secured together by screws *m*, which pass through the outer flanges of the body-segments *h* and *i* and screw into the segmental rings *k* and *l*.

The several constructions of milling-cutters shown are not intended as limitations, but merely as illustrations of the many arrangements of segmental parts which can be adopted according to my invention, and an important advantage arising out of each construction having such segmental parts is that the cutting-teeth can be adjusted sidewise to vary the width of the cutting-surface.

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

1. A milling-cutter consisting of segmental parts having cutting-teeth thereon and means for movably securing one part to the other part so that one part may be adjusted transversely of the plane of the other part, substantially as described.

2. A milling-cutter comprising two segmental parts, placed together to form a complete circular cutter, each of said parts having a pair of recesses, the recesses of one part being in line with the recesses of the other part, said recesses having enlarged portions, nuts seated in said enlarged portions and having transverse movement therein, and bolts having both ends threaded and engaging said nuts and directly clamping the parts together, substantially as described.

3. A milling-cutter comprising two segmental parts, placed together to form a complete circular cutter, each of said parts having a pair of recesses, the recesses of one part being in line with the recesses of the other part, said recesses having enlarged portions of cylindrical shape extending transversely through the parts, cylindrical nuts seated in said enlarged portions, and bolts having both ends threaded and engaging said nuts and directly clamping the parts together, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

JAMES FRANCIS DOWDING.

Witnesses:
S. W. GILLETT,
HERBERT ROWLAND ABBEY.