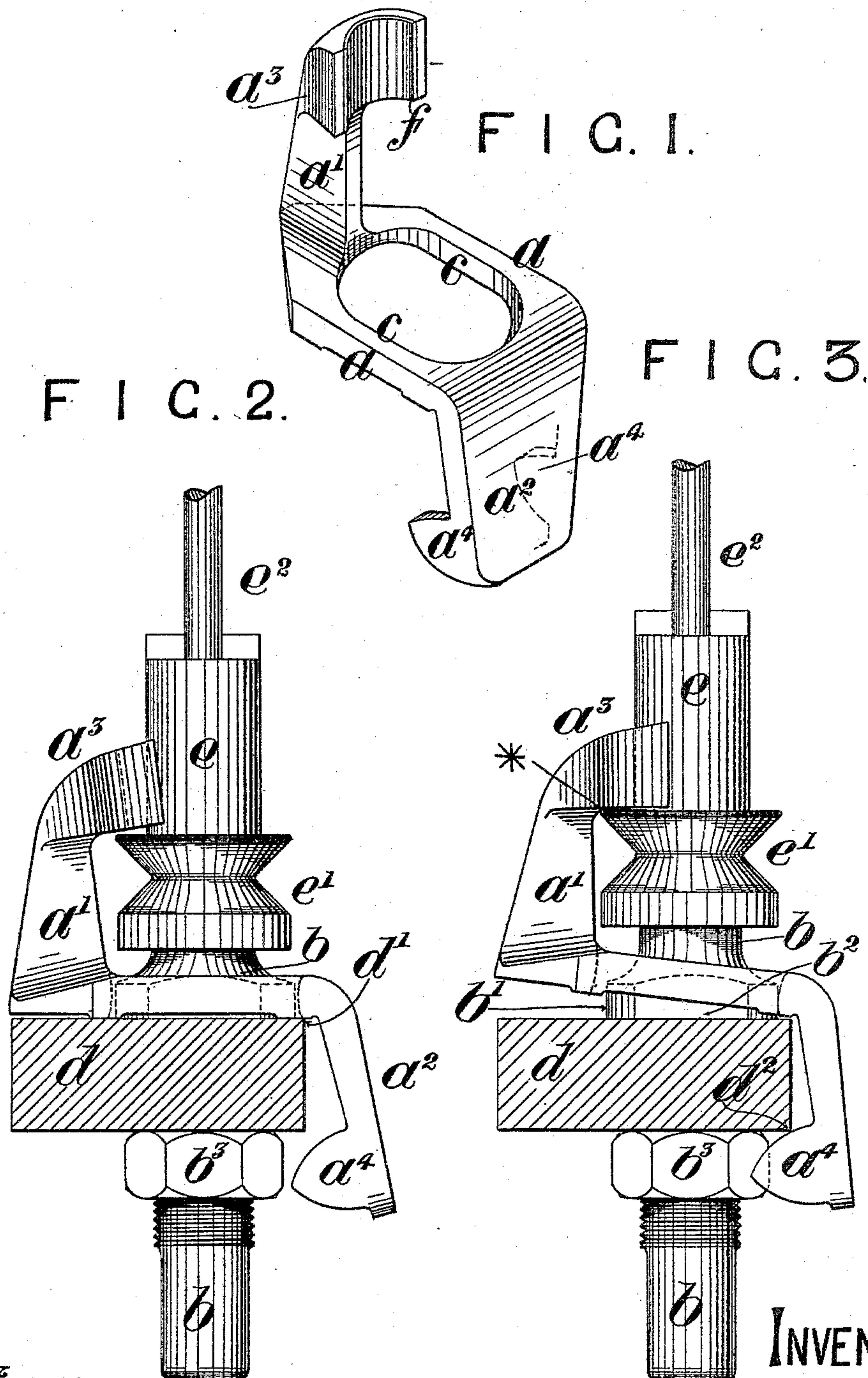


(No Model.)

J. M. HETHERINGTON.
BRAKE FOR SPINNING SPINDLES.

No. 414,536.

Patented Nov. 5, 1889.



Witnesses.
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UNITED STATES PATENT OFFICE.

JOHN MUIR HETHERINGTON, OF MANCHESTER, COUNTY OF LANCASTER,
ENGLAND.

BRAKE FOR SPINNING-SPINDLES.

SPECIFICATION forming part of Letters Patent No. 414,536, dated November 5, 1889.

Application filed July 10, 1888. Serial No. 279,571. (No model.) Patented in England June 21, 1888, No. 9,070.

To all whom it may concern:

Be it known that I, JOHN MUIR HETHERINGTON, machine-maker, a subject of the Queen of Great Britain and Ireland, residing at Manchester, county of Lancaster, England, have
5 invented an Improved Brake for Spinning-Spindles, &c., (for which I have obtained a patent in Great Britain, No. 9,070, dated June 21, 1888,) of which the following is a specification.

My invention relates to the spindles which are mounted to revolve in fixed bolsters, in which both or all of the bearings of the spindle are contained. In the operation of doff-
15 ing the cops, bobbins, or tubes from such spindles there is a tendency for the spindle to be lifted in the absence of any special means for the prevention of such lifting.

The object of my invention is to provide a
20 simple and inexpensive appliance which shall serve the double purpose of a brake to arrest the revolutions of the spindle and of a detent to limit the said lifting of the spindle. The said appliance, which I have termed a "detent-brake," consists of a single casting which
25 is so shaped and applied as to dispense with the necessity for using a hinge or hinge-pin, or a screw or fastening, or specially-applied additional part. The said detent-brake is
30 formed with an aperture to fit upon the collar of the bolster with freedom to permit of a suitable amount of rocking movement on the part of the detent-brake. From the central or nearly central part in which this aperture is formed two arms extend, one back-
35 ward and upward and the other forward and downward. The upper end of the backwardly-projecting arm extends over the wharve and toward the sleeve, and is adapted
40 to act as a brake when pressed against the said sleeve. The front arm extends downward below the spindle-rail, and an inclined or curved projection or swell extends from this front arm below the rail for a short distance.
45

My invention will be clearly understood when the accompanying drawings are referred to.

In the drawings, Figure 1 is a perspective
50 view of the said detent-brake. Fig. 2 repre-

sents it in position during the ordinary working of the spindle. Fig. 3 represents the spindle slightly lifted from its working position, and shows how the detent-brake prevents any further upward movement.

The detent-brake consists simply of a single casting, which is by preference provided with a lining of leather or other suitable material. With the exception of this lining the
60 appliance consists only of one piece of metal, which does not require any fastening or hinge-pin or any adjunct other than the ordinary spindle rail and bolster to keep it in position or to serve as a fulcrum for its movement.

For convenience I will describe the detent-
65 brake as consisting of three parts—a central part a , an upward extension a' , and a downward extension a^2 . In the part a is formed an aperture $c c$. (Clearly shown in Fig. 1.) This aperture is shaped to suit the form of
70 the collar b' , which is formed upon the spindle-bolster b . This collar has two flat sides b^2 , as is usual, and flat places are formed at $c c$ on the sides of the aperture in part a to fit the flat places upon the said collar.

When the detent-brake is seated in position upon the spindle-rail d , as seen in Fig. 2, the collar b' nearly fills the aperture in a , so that the detent-brake is kept in position without
80 any screw-pin or fastening, and is prevented from turning round upon the bolster by the two flat sides upon the collar b' . The upper end of the extension a' is formed with a part
85 a^3 , which projects over the ordinary wharve e' , formed upon the ordinary sleeve e , the latter being fixed upon the spindle e^2 , and the face of the projection a^3 which is toward the said sleeve is hollowed to suit the shape of the sleeve, as seen in Fig. 1, and this hollowed part is provided with a leather lining
90 f , or with a lining of felt, or of cloth, wood, or other material, or any such lining may be dispensed with. The downward extension a^2 extends below the spindle-rail and is slightly inclined away from it, as seen in Fig. 2. Upon
95 the lower end of this extension are formed projections consisting in this instance of two lugs $a^4 a^4$, one of these being indicated by the dotted lines in Fig. 1. These lugs are intended to extend to some extent below the
100

spindle-rail, as seen in Fig. 1. When the part a^2 is pressed toward the spindle-rail, the detent-brake being prevented by the collar b' from moving horizontally upon the rail beyond the limits of the slight freedom allowed by the size of the aperture in a , the detent-brake will turn upon the corner d' of the rail d , and the part a' will rise and the projection a^3 will move into contact with the sleeve e , and if the pressure upon a^2 be sufficient the rotation of the spindle will be arrested. In ordinary practice the pressure would be exerted upon the part a^2 by the knee of the operative at the time of taking off and putting on the bobbin for piecing the ends or for replacing the bobbin while the frame is working. Upon the pressure being removed the detent-brake would immediately fall free of the sleeve into the position shown in Fig. 2. If the operation of doffing lifts the spindle, and therefore the sleeve e and wharve e' , the latter comes into contact with the under side of the projection a^3 , as seen in Fig. 3, and if the upward strain upon the spindle be sufficient the lugs a^4 will be lifted into contact with the corner d^2 of the spindle-rail, as appears in Fig. 3. When this figure is examined, it will be seen that a vertically-acting upward force exerted at * will jam the hollow face of a^3 against the sleeve, which will in turn be forced to one side in its bearings, and will at the same time be prevented from rising further or from revolving, so that the appliance will answer the double purpose of a detent and of a brake.

The detent-brake may be pressed in dies or otherwise formed than by the operation of casting. Two lugs a^4 are provided, partly for

sake of lightness and partly because if the part a^2 were formed with a single projection extending across the width of the said part, or with a central projection, such projection would at times come into contact with the ordinary nut b^3 , which secures the bolster to the rail.

Having fully described my invention, I state that what I claim is—

1. A detent-brake formed with a central part to sit upon the spindle-rail, an upward extension forming a brake for the spindle, and a downward extension to engage with the under side of the rail, substantially as described.

2. A detent-brake having a central part to sit upon the spindle-rail of a spinning or doubling machine, an aperture to nearly fit the collar of the spindle-bolster, an upward extension provided with a projection shaped to act as a brake upon the spindle-sleeve, and a downward extension formed with lugs to pass below the corner of the spindle-rail, substantially as set forth.

3. The combination of a spindle having a wharve, a spindle-rail, and a bolster having a collar with a detent-brake having an aperture to embrace the bolster-collar, an upward extension to brake the spindle, and a downward extension to engage with the rail.

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

JOHN MUIR HETHERINGTON.

Witnesses:

DAVID FULTON,
FREDK. DILLON.