B. A. PETERSON.

SPINNING FRAME DOFFER.

APPLICATION FILED JAN. 6, 1912.

1,067,192.

Patented July 8, 1913.

3 SHEETS—SHEET 1.

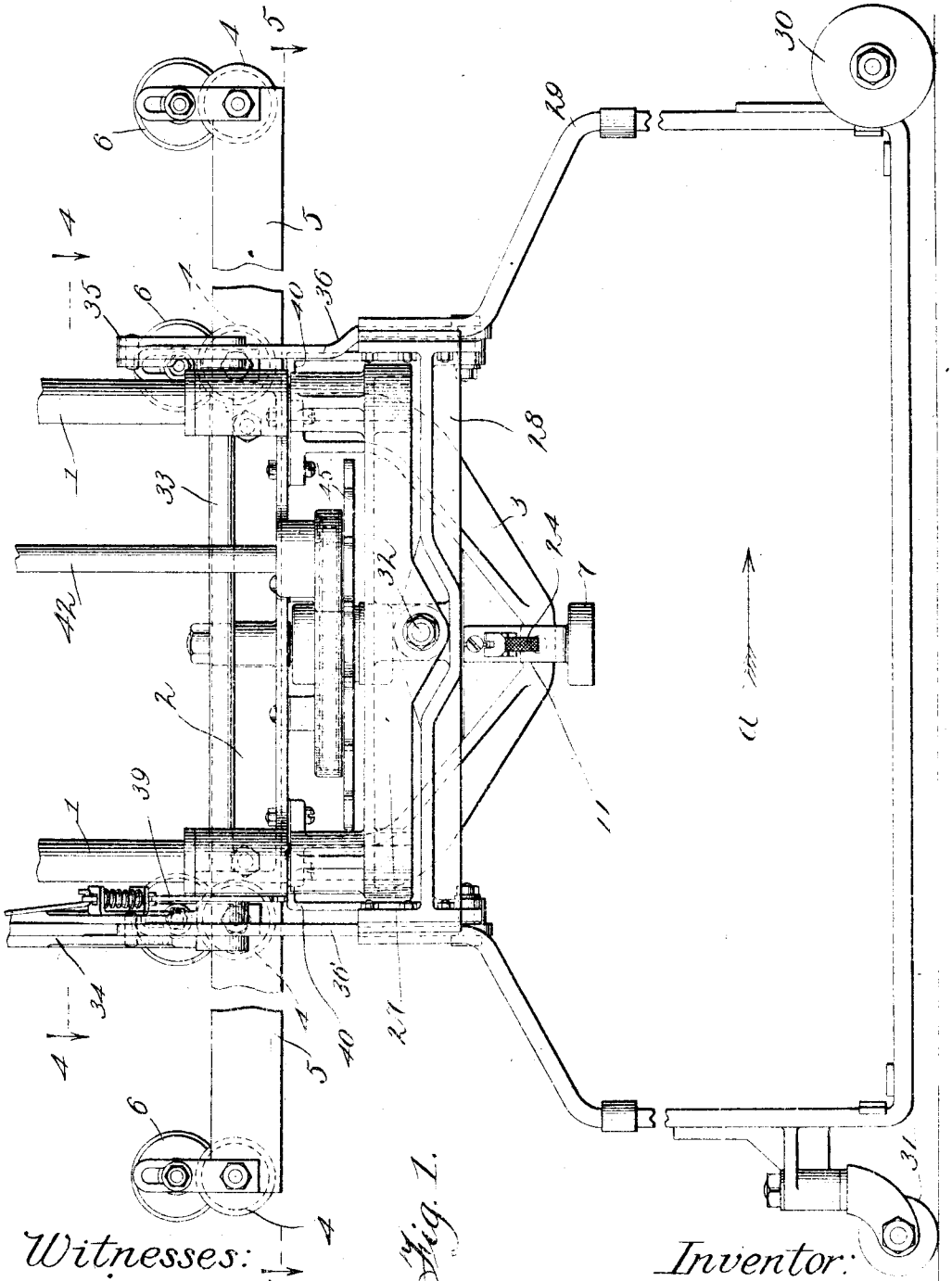


Fig. 1.

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3 SHEETS—SHEET 2.

Fig. 2.

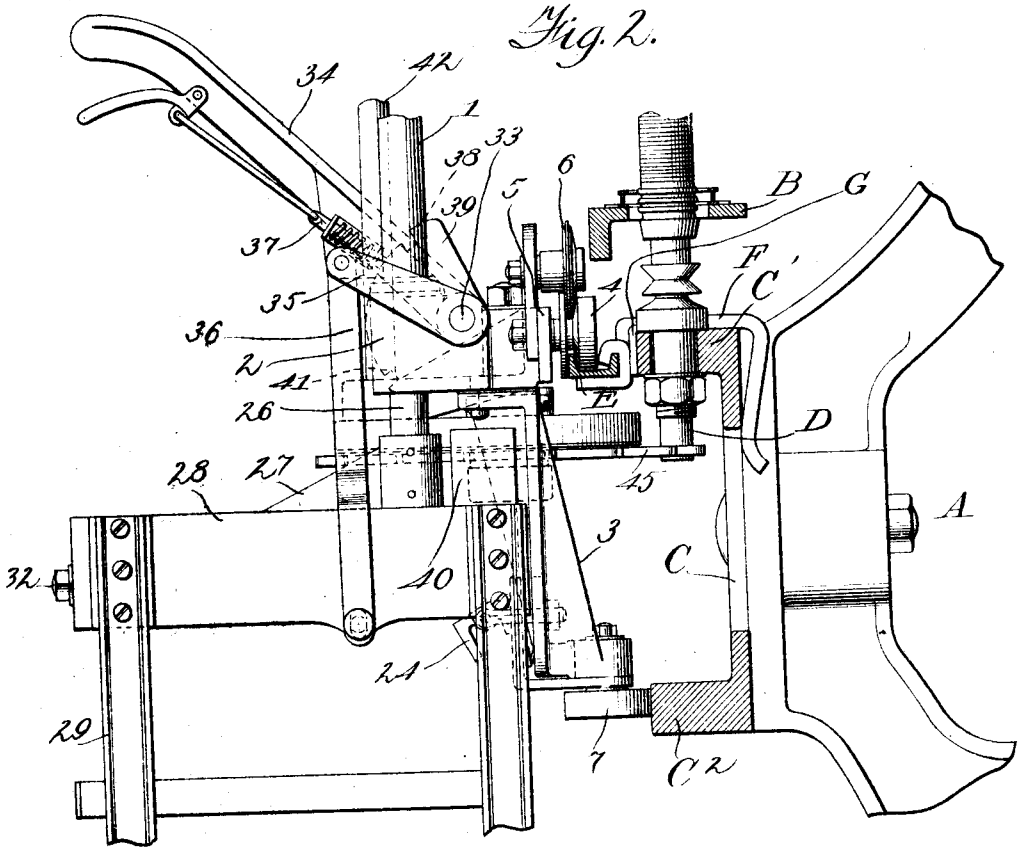
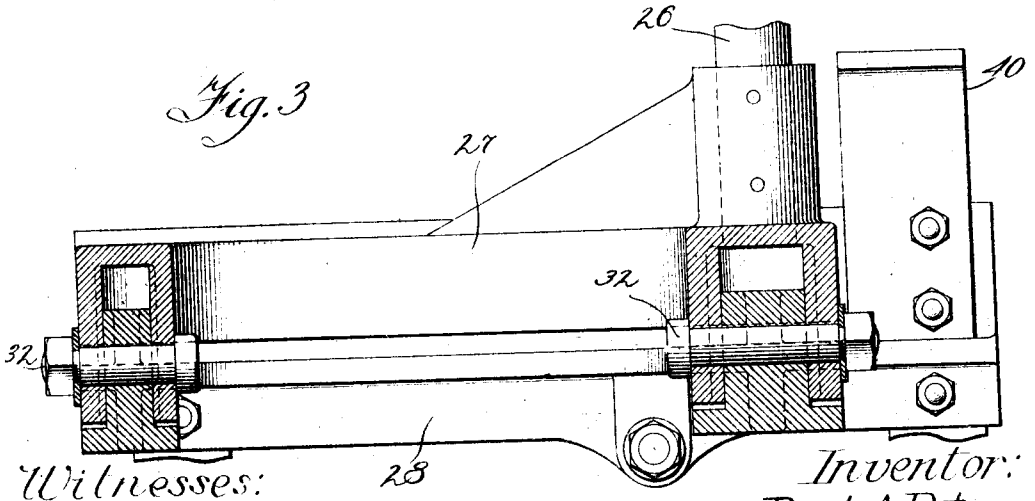


Fig. 3



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3 SHEETS—SHEET 3.

Fig. 4.

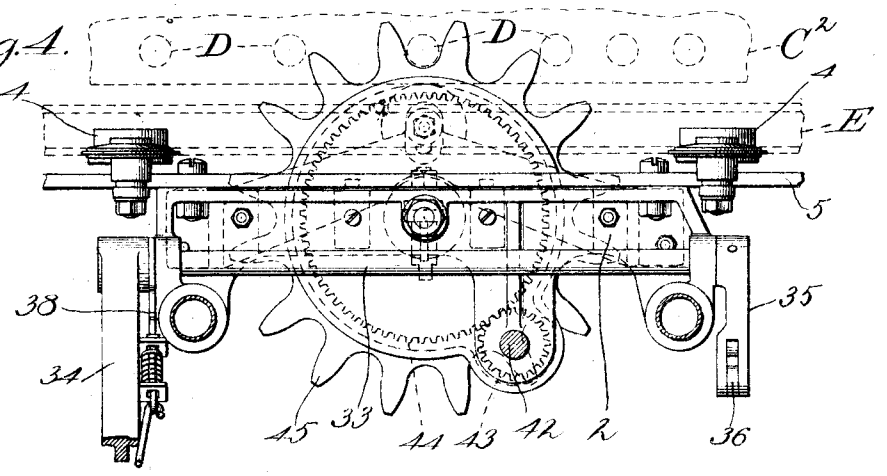


Fig. 5.

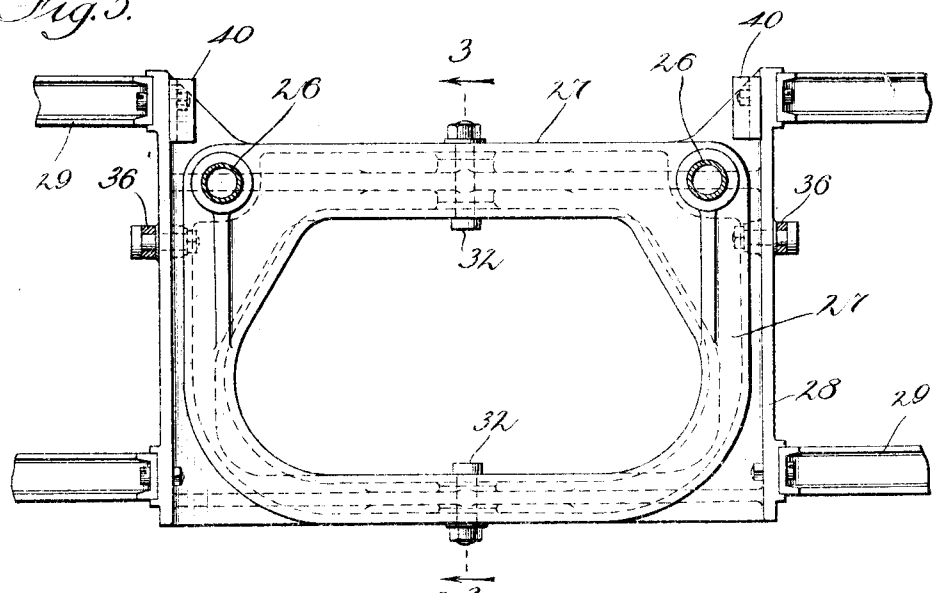
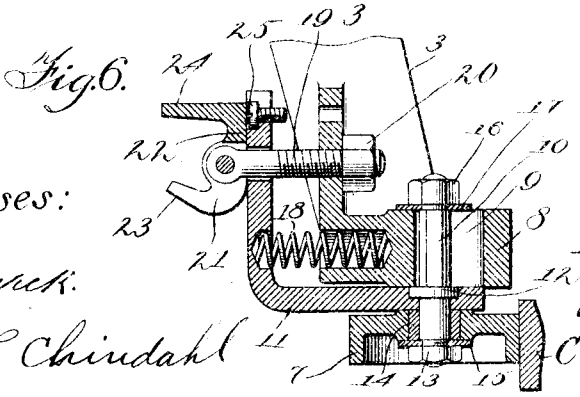


Fig. 6.



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UNITED STATES PATENT OFFICE.

BURT A. PETERSON, OF ROCKFORD, ILLINOIS, ASSIGNOR TO HOWARD D. COLMAN, LUTHER L. MILLER, AND HARRY A. SEVERSON, COPARTNERS DOING BUSINESS AT ROCKFORD, ILLINOIS, AS BARBER-COLMAN COMPANY.

SPINNING-FRAME DOFFER.

1,067,192. Specification of Letters Patent. Patented July 8, 1913.

Application filed January 6, 1912. Serial No. 669,766.

To all whom it may concern:

Be it known that I, BURT A. PETERSON, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Spinning-Frame Doffers, of which the following is a specification.

This invention relates to doffing machines adapted to travel along a spinning frame and successively replace the filled bobbins with empty ones.

Certain types of doffers are provided with wheels or casters to run upon the floor.

One of the objects of this invention is to prevent such a doffer from being tilted or subjected to stress in case of inequalities in the floor, or in the event that the wheels or casters pass over an obstruction.

Doffers are sometimes supported, in part, upon the spinning frames by means of rollers on the doffer running upon a rail attached to the spinning frame adjacent to the spindle rail, and by means of a roller on the doffer running upon a rail usually found in spinning frames below the spindle rail. The position of the first-mentioned roller-bearing rail with reference to said lower rail occasionally varies in different spinning frames, and one of the objects of this invention is to provide means whereby the position of the lower roller on the doffer may be adjusted to correspond with the position of the lower rail on the spinning frames.

In the accompanying drawings, Figure 1 is a fragmental front elevation of the lower part of a doffer embodying the features of my invention. Fig. 2 is a fragmental side elevation of the doffer, showing it in operative relation to a spinning frame. Fig. 3 is a vertical sectional view, taken in the plane of dotted line 3 3 of Fig. 5. Fig. 4 is a horizontal section on line 4 4 of Fig. 1. Fig. 5 is a view taken mainly in the plane of dotted line 5 5 of Fig. 1. Fig. 6 is an enlarged sectional view of the adjustably mounted roller.

In Fig. 2, A indicates a portion of a spinning frame, B being the ring rail, C the so-called ladder rail, C^1 the upper flange of the ladder rail constituting the spindle rail, C^2 the lower flange of the ladder rail, and D the spindle-bases.

The frame of the doffer may be of any suitable construction. As herein shown, the frame consists of an upper section which carries the operating mechanisms (not herein illustrated), a lower section which carries the receptacle for doffed bobbins, and an intermediate section. The upper section comprises two tubular columns 1 rigidly united at their lower ends by a bracket 2. Fixed to the lower side of the bracket 2 is a bracket 3. The upper section is supported upon the spinning frame by means comprising a suitable number of grooved rollers 4 mounted upon a bar 5 fixed to the bracket 2, said rollers running upon a channel rail E secured to the spinning frame adjacent to the spindle rail. The channel rail E may be attached to the spinning frame in any preferred way. Herein I have indicated said rail as fixed to a number of clips F (only one being shown in the drawings), said clips being sprung over the spindle rail C^1. The distance between the center line of the row of spindles and the front edge of the rail C^1 varies in different spinning frames. When this distance is less than the usual or standard distance, a shim G of proper thickness is placed between the front edge of the rail C^1 and the part of the clip F which engages the channel rail E.

6 are scavenger rollers to keep the grooves of the rollers 4 from clogging with lint.

Upon the bracket 3 is mounted a roller 7 in position to bear against the edge of the rail C^2, and thus support the doffer in a vertical position. To compensate for variations in the relation between the rails E and C^2 in different spinning frames I provide means for adjusting the roller 7 so that the doffer may be properly supported in vertical position. The means herein shown for this purpose is as follows: The bracket-portion 8 has a horizontally elongated opening 9 therein, through which extends a bolt 10. Said bolt also passes through an angular bracket 11 that contacts the lower side of the bracket portion 8. A flange 12 on the bolt lies within the bracket 11. On the lower end of the bolt 10 is a nut 13 between which and the flange 12 are clamped the bracket 11, a sleeve or bushing 14 on the bolt and a washer 15. The roller 7 is rotatably mounted on the bushing 14 between the bracket 11 and the washer 15. On the

upper end of the bolt 10 is a nut 16 and a washer 17 which hold the bracket 11 and roller 7 against vertical displacement but permit them to slide horizontally with relation to the bracket-portion 8. A compression spring 18 tends to move the bracket 11 and the roller 7 forwardly. A bolt 19 has a screw-thread engagement with the bracket 3 and is locked in adjusted position by means of a nut 20. To the forward end of the bolt 19 is pivoted a cam 21 having flat faces 22 23 and a handle 24. Said faces lie at different distances from the axis of the cam 21.

25 is a stop screw carried by the bracket 11 in position to be contacted by the face 22. Said screw may be turned until its head lies behind the forward side of the bracket 11 and thus out of position to be contacted by the face 22.

Adjustment of the bolt 19 and the screw 25 provides for a considerable range of variation in the distance between the vertical planes of the front edges of the rails C^2 and E, the roller 7 being moved from one position to another by turning the cam 21. The amount of movement imparted to the roller 7 through the medium of the cam 21 may be regulated by causing the stop screw 25 to project more or less from the forward side of the bracket 11.

The intermediate section of the doffer frame comprises, in this instance, two posts 26 adapted to fit slidably within the tubular columns 1, the lower ends of said posts being rigidly connected by a bracket 27. Said bracket has a pivotal connection with a section arranged to run upon the floor. The latter section may be of any suitable construction, that herein shown comprising a top bracket 28 and a frame 29 adapted to contain and support a box (not shown) to receive the full bobbins. The frame 29 is provided with suitable rollers 30 and 31. The intermediate and lower sections are connected to swing upon a horizontal axis extending from front to rear in the vertical median plane of the doffer, by means of two pivot bolts 32 passing through perforated portions of the brackets 27 and 28. Any other preferred form of pivotal connection may be employed.

Referring to Fig. 1, and assuming the doffer to be traveling along the front of the spinning frame in the direction indicated by the arrow *a*: Should the wheels 30 rise in passing over an obstruction upon the floor, the box-supporting section 28 29 will tilt upon the axis 32 and the intermediate section 26 27 will rise, no stress tending to tilt the mechanism-carrying section 1 2 being placed upon the latter.

For convenience in moving the doffer into and out of operative relation to the spinning frame, means may be provided for moving the upper or mechanism-carrying section with relation to the lower section 26 27 28 29. Herein I have shown a rock shaft 33 mounted in bearings on the bracket 2, one end of said shaft being provided with a hand lever 34 and the other end with a crank arm 35. Links 36 connect the lever and crank arm with the bracket 28, the links 36 being loosely pivoted to the bracket 28 to prevent binding in case of pivotal movement on the axis 32. The upper section may, if desired, be locked in its lower position by means of a detent 37 on the hand lever arranged to enter a notch 38 in a sector 39 fixed to the bracket 2. To prevent the upper section of the doffer from tilting on the axis 32 when the doffer is off the spinning frame, I may provide means such as two brackets or rests 40 attached to the bracket 28 in position to support the bracket 2 when the upper part of the doffer is in its lowest position, as in Fig. 1. When desired, the upper section may be locked in its most elevated position by depressing the lever 34 until the detent 37 snaps into the notch 41 in the sector 39.

The means for actuating and propelling the doffer may be of any suitable character. Herein I have shown a power-transmitting shaft 42 bearing at its lower end a pinion 43 that meshes with a spur gear wheel 44 fixed to a toothed wheel 45, the latter being adapted to mesh with the spindle-bases D and thus propel the doffer along the spinning frame. When the doffer is to be placed in operative relation to a spinning frame, the lever 34 is depressed until the rollers 4 are above the horizontal plane of the rail E, the lever being held in such position while the doffer is pushed against the spinning frame. The upper section of the doffer is then permitted to descend until the rollers 4 rest upon the rail E.

I claim as my invention:

1. In a doffer, the combination of a mechanism-carrying section arranged to be supported upon a spinning frame, a section arranged to be supported upon the floor, and an intermediate frame-portion movably connected to the first mentioned section, and pivotally connected to the second mentioned section.

2. In a doffer, the combination of a mechanism-carrying section arranged to be supported upon a spinning frame, a box-receiving frame arranged to be supported upon the floor, and an intermediate frame-portion connected to the first mentioned section for vertical sliding movement and to the box-receiving frame for relative pivotal movement.

3. In a doffer, the combination of a mechanism-carrying frame-section, a frame-section having a telescoping connection with the first section for vertical sliding move-

ment, and a box-receiving frame arranged to be supported upon the floor and having a pivotal connection with the second frame-section.

4. In a doffer, the combination of a mechanism-carrying frame-section, a frame-section connected to the first section for vertical sliding movement, a box frame arranged to be supported upon the floor and having a pivotal connection with the second frame-section, and means on the box frame on which the first frame-section may rest.

5. In a doffer, the combination of a mechanism-carrying frame-section, a frame-section connected to the first section for vertical sliding movement, a box frame arranged to be supported upon the floor and having a pivotal connection with the second frame-section, means on the box frame on which the first frame-section may rest, and means for raising the first frame-section off said rest-providing means.

6. In a doffer, the combination of upper, middle and lower frame-sections, and a crank and link connection between the upper and lower sections.

7. In a doffer, the combination of upper, middle and lower frame-sections, the upper and middle sections being slidably connected, and the middle and lower sections being pivotally connected.

8. In a doffer, the combination of upper, middle and lower frame-sections, the upper and middle sections being slidably connected, the middle and lower sections being pivotally connected, and means extending between the upper and lower sections for moving them apart.

9. In a doffer, the combination of upper, middle and lower frame sections, means connecting the upper and lower frame sections for relative movement, and rests on the lower section to support the upper section.

10. In a doffer, the combination of upper, middle and lower frame-sections, the upper and middle sections being slidably connected, and the middle and lower sections being pivotally connected, and rests on the lower section to support the upper section.

11. In a doffer, the combination of a mechanism-carrying frame-section provided with rollers for supporting it upon a spinning frame, a frame-section having a telescopic connection with the first section for vertical sliding movement, a box-receiving frame arranged to be supported upon the floor and pivoted to the second frame-section for relative swinging movement on a horizontal axis extending from front to rear of the doffer, a rock shaft carried by the first frame-section, a crank and a hand lever on said shaft, links connecting said hand lever and crank with the box-receiving frame, and rests on the box-receiving frame for the first frame-section.

12. In a doffer, a doffer frame, supporting means on the frame, other supporting means on the frame below the first mentioned supporting means, the second mentioned supporting means being arranged to engage the lower flange of the ladder rail of a spinning frame, and means for moving the second mentioned supporting means forward and back.

13. In a doffer, a doffer frame, supporting means on said frame, a roller mounted in the doffer frame below said supporting means in position to engage the lower flange of the ladder rail of a spinning frame, a spring for moving said roller in one direction, and a cam for moving said roller in the opposite direction.

14. In a doffer, a doffer frame, supporting means on said frame, a bracket slidably connected to said frame below said supporting means, a roller supported on said bracket in position to engage the lower flange of the ladder rail of a spinning frame, and a cam adjustably supported in the doffer frame and engaging said bracket to move the latter.

15. In a doffer, a doffer frame, supporting means on said frame, a bracket slidably connected to said frame below said supporting means, a roller supported on said bracket in position to engage the lower flange of the ladder rail of a spinning frame, a cam adjustably supported in the doffer frame and engaging said bracket to move the latter, and an adjustable stop on the bracket arranged to be engaged by said cam.

In testimony whereof I affix my signature in the presence of two witnesses.

BURT A. PETERSON.

Witnesses:
W. O'R. Heym,
Louise A. Culver.