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 Means for Attaching Doffer-Supporting Rails to Spinning-Frames, of which the following is a specification.

This invention relates, generally, to machines arranged to travel along the front of spinning frames for dosing the latter. Such a machine is supported upon the spinning frames by means of a rail secured to and extending along the front of each frame. Spinning frames are not provided with such rails by the spinning-frame manufacturers, and hence before a mechanical doffer can be used in a spinning room it is necessary to equip both sides of each frame with a rail to support the doffer.

The object of this invention is to provide means for securing doffer rails to spinning frames which shall take into account the variations occurring in the dimensions of spinning machines, and which shall require the performance of the least possible amount of work in the spinning room.

In the accompanying drawings, Figure 1 is a transverse vertical sectional view through the spindle rail of a spinning frame, showing a doffer-supporting rail secured to the spindle rail by means embodying my invention. Fig. 2 is a top plan view of the parts shown in Fig. 1. Fig. 3 is a detail view showing the rear end of the clip before it is bent beneath the spindle rail. In the drawings, 1 indicates the spindle rail and 2 the spindles. The doffer-supporting rail 3 may be of any suitable form, it being herein shown as of channel form in cross-section. The doffer-supporting rail is secured to the spindle rail at intervals in its length by means of clips 4 each formed from a strip of metal, and each comprising a flat portion 5 adapted to lie in contact with the top of the spindle rail between two adjacent spindles. The distance between spindles varies in different spinning frames, hence the clips are necessarily located at varying distances apart in the case of different frames. It is important that such means be adopted for connecting together the doffer-supporting rail and its clips so that it shall not be necessary to measure each individual spinning frame in advance, and so that as little work as possible shall be necessary at the time of attaching the rail to the spinning frame. I therefore connect the doffer-supporting rail and its clips in the following described manner: The forward portion of each clip comprises the vertical downwardly-extending portion 6 and the portion 7 extending forwardly from the lower end of said vertical portion. The portion 7 forms a seat for the doffer-supporting rail 8. The latter is held rigidly upon said seat with one side of the rail in contact with the vertical portion 6 by means of hooks 9 preferably formed by shearing away a portion of the sides of the strip forming the clip, and bending the free ends so obtained to form hooks, as shown. In the manufacture of the clip, the hooks 8 are not bent as far as shown in the drawings, but are left extending outwardly far enough so that the doffer-supporting rail can be inserted laterally onto its seat 7.

The rear or inner end of the clip comprises an angular portion 9 extending downwardly into contact with the inner edge of the spindle rail, the lower end 10 of said angular portion being bent forwardly beneath and in contact with the lower side of the spindle rail so as to lock the clip in place upon the spindle rail. In order that the angular portion or tail 9 may be more easily bent at the proper point, I preferably provide a recess 9a therein.

If the recess 9a were absent, the bend in the portion 9 would be of considerable radius, permitting the clip to slip forward away from the spindle rail. By providing the recess 9a the bend in the portion 9 of the clip coincides with the lower rear edge of the spindle rail.

In practice the width of spindle rails varies somewhat in different spinning frames. Therefore, the length of the portion 5 of the clip is made as great as the width of the widest rail, and the tail or angular portion 9 is inclined forwardly so that when the clip is placed upon a narrow spindle rail said portion 9 shall engage the rail when the clip is first applied. When the clip is placed upon a wider spindle rail, the portion 9 is forced rearwardly sufficiently to permit the clip to assume its proper position.
After the clip has been placed on the spindle rail, the lower end of the portion 9 is bent forwardly as at 10 to lock the clip in position. The distance between the center line of spindles and the front edge of the spindle rail varies considerably in different spinning frames. In order that the doffer-supporting rails may be located at a uniform distance from the central line of the spindles, I provide, where necessary, a shim 11 placed between the front edge of the spindle rail and the portion 6 of the clip. The shim 11 is held against downward and lateral displacement by suitable means such as two hooks 12 formed upon its upper edge at opposite sides of the clip. Shims of varying thickness are provided to bring the doffer-supporting rail to a uniform distance from the central line of the spindles.

The operation of securing the doffer-supporting rail to the spinning frame is as follows: A suitable number of clips 4 are placed upon the spindle rail 1 at suitable distances apart, shims 11 being inserted where necessary. The lower end of the portion 9 of each clip is then bent forwardly as shown in Fig. 1 to lock the clip in place. The doffer-supporting rail 3 is then placed upon the seat 7 of the respective clips, and the hooks 8 driven down with a hammer and drift to the position shown in Fig. 1 to lock the doffer rail firmly in place.

It will be seen that this invention provides for the variations in spinning frames, and minimizes the amount of work necessary to be done in the spinning room. The rail attaching means, moreover, consists of a minimum number of parts. Arranging the attaching means to engage only the spindle rail conductors to simplify and locate the parts out of the way of the devices sometimes used on the doffer to engage the projecting lower ends of the spindle bases.

I claim as my invention:

1. The combination with the spindle rail of a spinning frame, of a doffer-supporting rail, and a clip having a portion lying on top of said spindle rail, the forward end of said clip having means to engage and support said doffer-supporting rail in a plane close to the upper face of said spindle rail, said clip having a downwardly extending arm at its rear end arranged to bear against the rear part of the spindle rail to prevent the weight on said doffer-supporting rail from tilting the rear portion of said clip upwardly.

2. The combination with the spindle rail of a spinning frame, of a doffer-supporting rail, and a clip having its forward end supporting said doffer-supporting rail in a plane close to the upper face of said spindle rail, said clip having a portion lying on top of said spindle rail and having a downwardly extending arm at its rear end engaging the rear side of said spindle rail, the lower end of said arm being bent to underlie and engage the rear edge of said spindle rail to positively prevent the weight on said doffer-supporting rail from tilting the rear end of said clip upwardly.

3. The combination with the spindle rail of a spinning frame, of a doffer-supporting rail, and a clip having its forward end engaging said doffer-supporting rail, said clip having a portion lying on top of said spindle rail and having a downwardly extending integral arm at its rear end to bear against the rear part of the spindle rail for holding the doffer-supporting rail in place and preventing tilting movement of the clip.

4. The combination with the spindle rail of a spinning frame, of a doffer-supporting rail, and a clip extending crosswise of said spindle rail and comprising a portion resting on the top thereof, means at the rear end of said clip engaging the spindle rail to hold the clip thereon, a supporting portion on the forward end of the clip on which portion the doffer-supporting rail rests, and a part sheared from one edge of the clip and bent to provide a hook overlying an edge of the doffer-supporting rail, said hook being clenched down over said edge after the rail is seated on said supporting portion of the clip.

5. The combination, with the spindle rail of a spinning frame, of a doffer-rail, a clip attached to said doffer-rail, said clip comprising a portion extending across the top of the spindle rail and a downwardly extending portion at each end of said other portion, and means carried by one of said portions arranged to engage the lower side of the spindle rail.

6. The combination, with the spindle rail of a spinning-frame, of a doffer-supporting rail, and a clip secured at its forward end to the doffer-supporting rail, said clip comprising a portion lying upon the upper surface of the spindle rail, and a downwardly bent portion bearing against the rear edge of the spindle rail, the lower end of said downwardly bent portion being bent forwardly beneath and in contact with the spindle rail.

7. The combination, with the spindle rail of a spinning-frame, of a doffer-supporting rail, and a clip formed from a metal strip bent to provide a flat portion lying in contact with the top of the spindle rail, a downwardly bent portion extending along side the forward edge of the spindle rail, a portion extending forwardly from the lower end of said downwardly bent portion, a hook bent up from the strip, said doffer-supporting rail being seated upon said forwardly extending portion and being held thereon by said hook, and a downwardly bent portion bearing against the rear edge.
of the spindle rail, the lower end of the last mentioned portion being bent forwardly beneath and in contact with the spindle rail.

8. The combination, with the spindle rail and series of spindles of a spinning frame, of a doffer-supporting rail, a clip extending across the top of said spindle rail, said clip comprising a seat for said doffer-supporting rail, said seat being in front of said spindle rail, and a shim interposed between said seat and spindle rail, for properly spacing the doffer-supporting rail from the series of spindles.

9. The combination, with the spindle rail and series of spindles of a spinning frame, of a doffer-supporting rail, a clip extending across the top of said spindle rail, said clip comprising a seat for said doffer-supporting rail, said seat being in front of said spindle rail, and a shim interposed between said seat and spindle rail, for properly spacing the doffer-supporting rail from the series of spindles, said shim having on its upper edge two flanges that overlie the spindle rail and lie at opposite sides of the clip.

10. In a clip for securing doffer-supporting rails to spinning frames, a forward portion for engaging the doffer rail, an intermediate portion adapted to rest upon a portion of the spinning frame, and a rear or tail portion adapted to be bent into engagement with a portion of the spinning frame when said clip is applied.

11. In a clip for securing doffer-supporting rails to spinning frames, a forward portion for engaging the doffer rail, an intermediate portion adapted to rest upon a portion of the spinning frame, and a rear portion adapted to engage with a part of the spinning frame, said rear portion being weakened in order to insure the bending of said rear portion at a predetermined point.

12. A clip for attaching doffer-supporting rails to spinning frames having means for engaging and supporting a doffer rail, an intermediate portion adapted to rest upon the spindle rail of the spinning frame, and a rear portion adapted to be bent into engagement with the rear side of said spindle rail, said rear portion being weakened to provide for the bending of said rear portion at a predetermined point.

13. A clip for attaching doffer-supporting rails to spinning frames having a forward portion extending beneath the doffer rail and a hook portion adapted to be bent over and engage the upper part of the doffer rail, an intermediate portion adapted to rest upon a portion of the spinning frame, and a rear portion adapted to be bent into engagement with a portion of the spinning frame to hold said clip in position thereon.

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

BURT A. PETERSON.

Witnesses:

JOHN F. ELWOOD,
LOUISE A. CULVER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D.C."