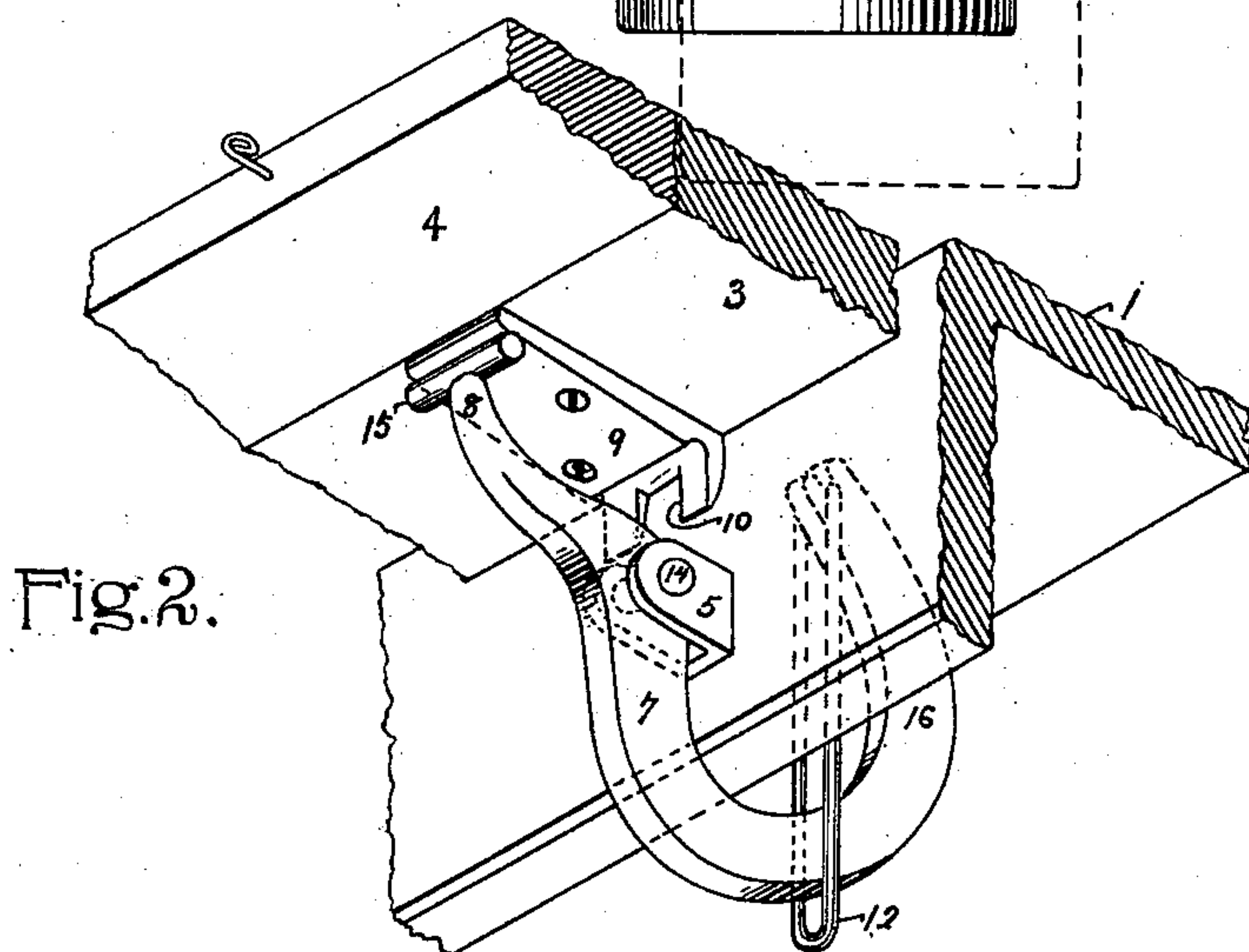
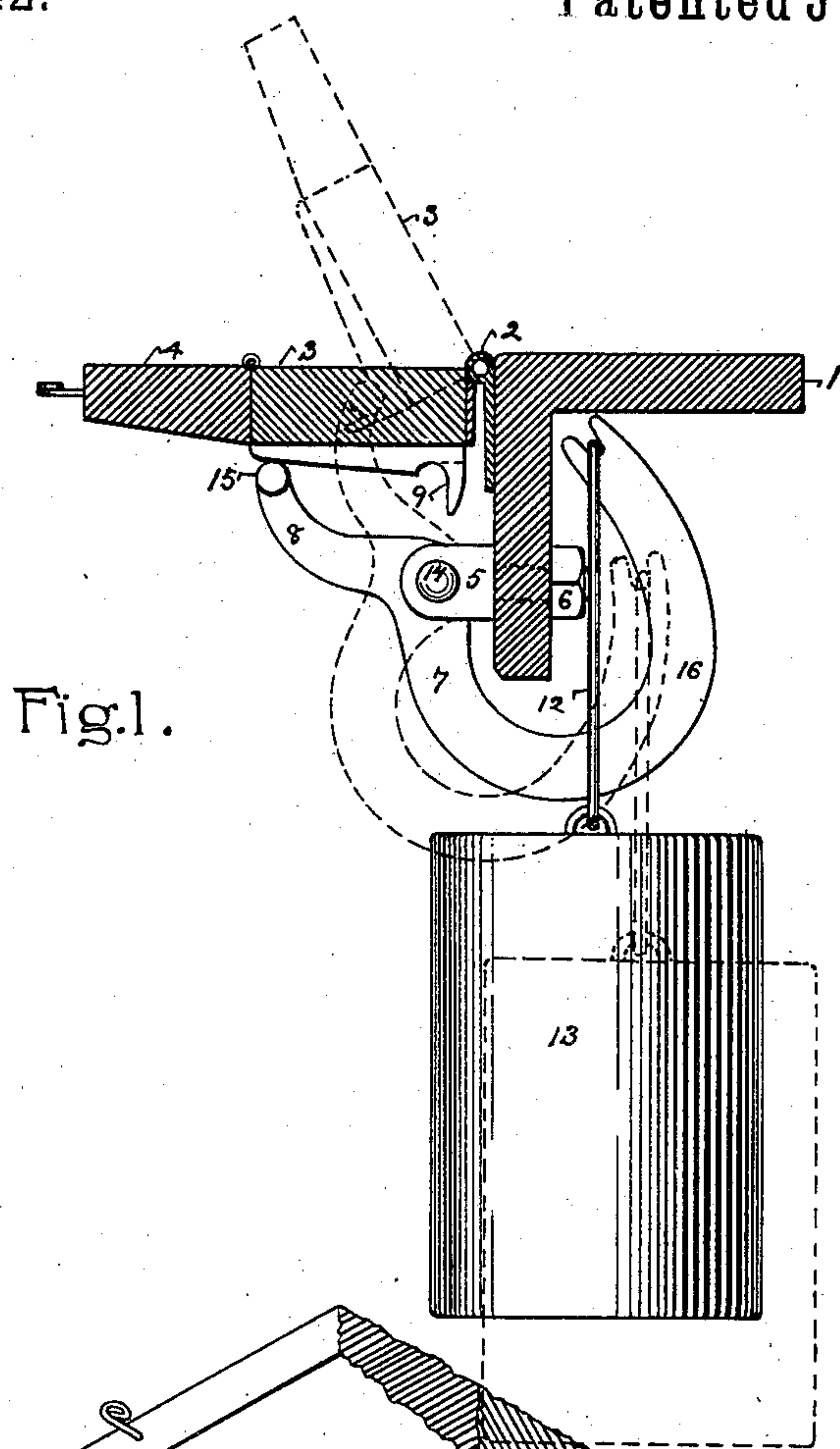


(No Model.)

H. J. WOODMAN.
SPINNING MACHINE.

No. 364,742.

Patented June 14, 1887.



Witnesses:

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HERBERT JOHNSON WOODMAN, OF LOWELL, MASSACHUSETTS.

SPINNING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 364,742, dated June 14, 1887.

Application filed January 15, 1887. Serial No. 224,387. (No model.)

To all whom it may concern:

Be it known that I, HERBERT JOHNSON WOODMAN, a citizen of the United States, residing at Lowell, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Spinning-Machines, of which the following is a specification.

My invention relates to ring-spinning machines, and has for its object to facilitate the operation of "doffing" on such machines by enabling the thread-boards and the guide-wire blocks thereof to be quickly and easily raised and retained in such a position that the filled bobbins may be removed from the machine and empty ones substituted therefor without interfering with the said guide-wire blocks, and by providing means of quickly replacing the said guide-wire blocks and thread-board in their proper places when the spindles have been provided with empty bobbins.

My invention is illustrated in the accompanying drawings, in which—

Figure 1 is an end elevation, partly in section, of portions of the roller-beam of a spinning-frame and its attached mechanism, showing the thread-boards, the guide-wire blocks, and an example of the means which I use to aid in the raising of the thread-board and in keeping the same in an elevated position while the doffing is being accomplished; and Fig. 2 is an isometric view of some of the parts shown in Fig. 1.

Similar reference-numbers refer to the same parts in both views.

In the drawings, the roller-beam 1 is shown as having hinged thereto by hinges 2 the thread-board 3, and to this thread-board are hinged the ordinary guide-wire blocks 4. All of these parts may be of any usual construction.

Through the front face of the roller-beam passes the stud 5, which is furnished with a threaded shank, upon which a clamping-nut, 6, works, by which the stud is secured in the roller-beam. The stud 5 is also provided with the pin 14, or its equivalent, upon which the lever 7 is supported. The stud 5 is shown as forked at the end, the said lever 7 being supported in the said fork, although any other usual means of making this joint between the stud and lever may be employed.

The stud 5 is shown as being supported in

a hole made through the roller-beam, although it may be supported in any other suitable manner from any other convenient part of the spinning-frame, its function being simply to support the pivot 14, upon which the lever 7 rocks.

The lever 7 is of a peculiar form which especially adapts it for service in the situation illustrated, the desirable characteristics of which are the arm 8, which bears upon the lower side of the thread-board 3, or upon a plate, 9, fastened thereto, and another arm, 16, to which a force is applied to assist in raising the thread-board. The arm 16 is shown as of a curved form, the curve being made of such a shape that it will not in any part come in contact with the lower edge of the roller-beam 1 in any part of its motion, although this curved form is not always essential.

A force is applied to the arm 16, to aid in raising the thread-board, by means of the weight 13, that is attached to the end of the said arm, although a spring attached to the said arm might be substituted for this weight.

In order that the thread-board may not be lifted too high by the action of the lever 7 and the force acting thereon, and the guide-wire blocks thereby thrown backward, I prefer to furnish some kind of stop which shall prevent such action. This stop is made by the cross-bar 15 upon the arm 8 working in connection with the bearing-plate 9. I prefer to make the slot 10 in the middle of a downwardly-projecting arm of the said bearing-plate, in order that the cross-bar 15 may readily be enabled to seat itself, as shown by dotted lines in Fig. 1, in the slight pocket which I prefer to make at the rear end of the bearing-plate 9, in consequence of the arm 8 passing through the said slot. However, other equivalent forms of stop may be readily substituted for the one illustrated.

I prefer to form the arm 16 in such a shape that when the lever 7 begins to rock the actual leverage or arm with which the force acts upon the said lever may continually increase. This object is attained in that form of my invention which is illustrated by carrying the end of the arm 16 above the level of the pivot 14. It should be observed that the rate of this increase of leverage is greater the nearer the primary line of the application of the force

comes to passing through the pivot 14, and this rate may be consequently controlled easily by so shaping the lever 7 and placing the support therefor as to bring this primary
5 line more or less near to passing through the said pivot, as desired.

Although I have found that the special form of my invention which is illustrated in the drawings is a very desirable one for use with
10 the usual form of ring-spinning frames, I do not desire to limit myself to that exact form in all cases, since I am aware that other forms thereof may be used. Especially I am aware that the stop for preventing the throwing over
15 of the guide-wire blocks may be used with some other forms of thread-board lifters, and that other and ordinary means of applying a force with an increasing leverage to the lever 7 as it rocks may be substituted for the one
20 illustrated.

By using the lever 7 with the increasing leverage, and especially if the leverage of the weight of the thread-board acting upon the arm 8 simultaneously decreases, as is the case with
25 the arrangement shown in the drawings, it is easy to select a weight, 13, of such size that the thread-board 3 will not, without other aid, tend to rise, but will, nevertheless, be easily raised by a feeble force applied at any por-
30 tion of its length, and as readily depressed into the position proper for spinning. This is of material importance in a spinning-frame, since an operative can very readily perform all necessary operations in spinning or doffing with-
35 out being obliged to go to any particular part of the machine in order to raise or depress the thread-board, as in the usual kinds of spinning-machines provided with thread-board lifters.

What I claim as new, and desire to secure by 40 Letters Patent, is—

1. The thread-board and a suitable support to which it is hinged, combined with a lever resting against the said thread-board and a suitable support for the said lever, a means 45 for continuously pressing the said lever against the said thread-board in such a direction as to tend to raise the same upon its hinges, and a stop for preventing the said thread-board from being raised too high, substantially as de- 50 scribed, and for the purposes specified.

2. The thread-board and a suitable support therefor, to which it is hinged, combined with a rocking-lever, a support therefor, and a means of applying a force to the said lever 55 to cause it to actuate the thread-board and raise the same upon its hinges, the whole constructed substantially as described, to cause the said force to act with an increasing lever- 60 age as the lever turns upon its support, substantially as set forth.

3. The roller-beam and the thread-board hinged thereto, combined with a rocking-lever, one arm of which presses against the thread-board, and the second arm of which ex- 65 tends below and behind the roller-beam and considerably above the level of the point where the said rocking-lever is supported, and a means of forcing the end of the second arm in a downward direction, substantially as and 70 for the purposes specified.

HERBERT JOHNSON WOODMAN.

Witnesses:

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