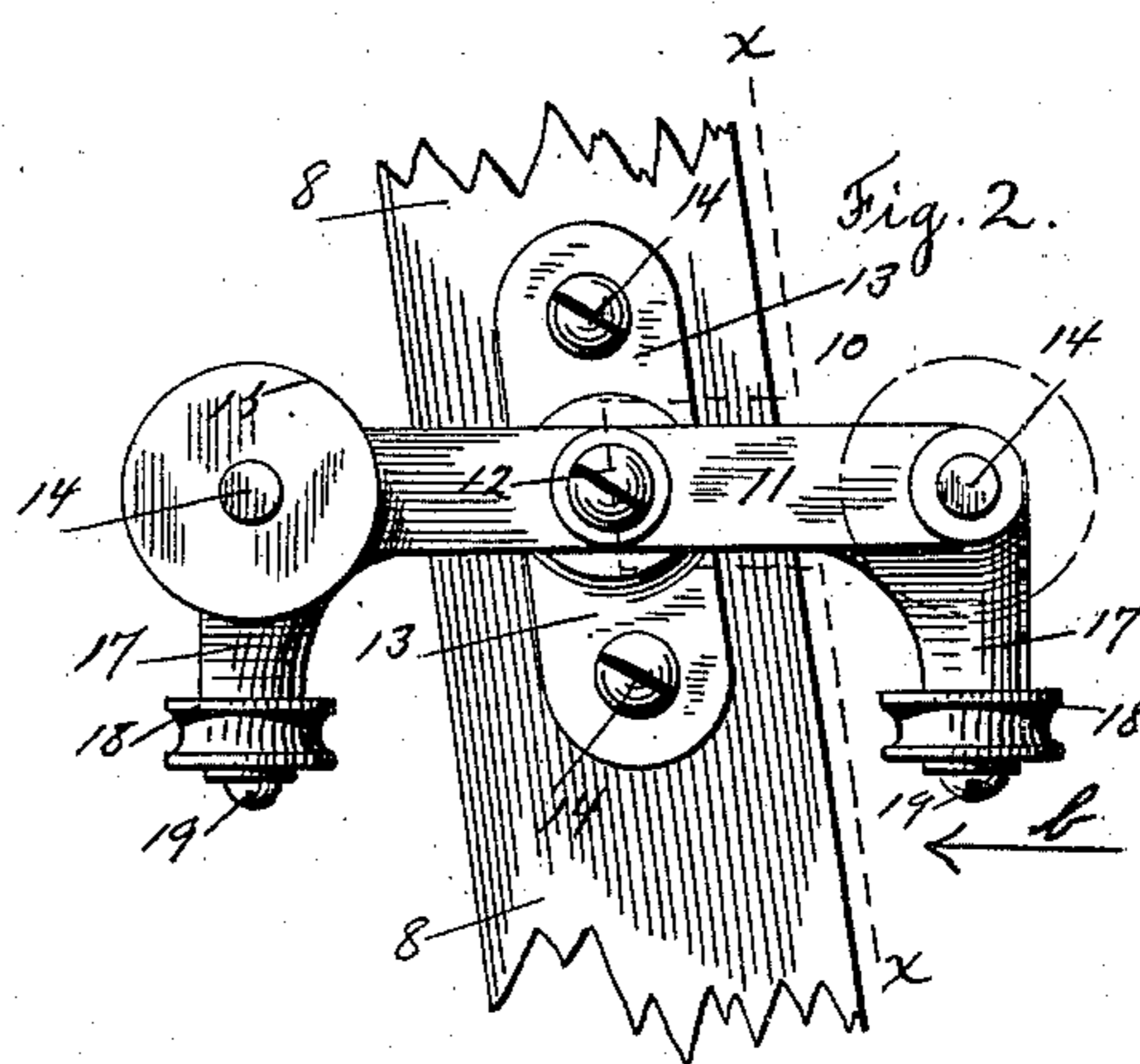
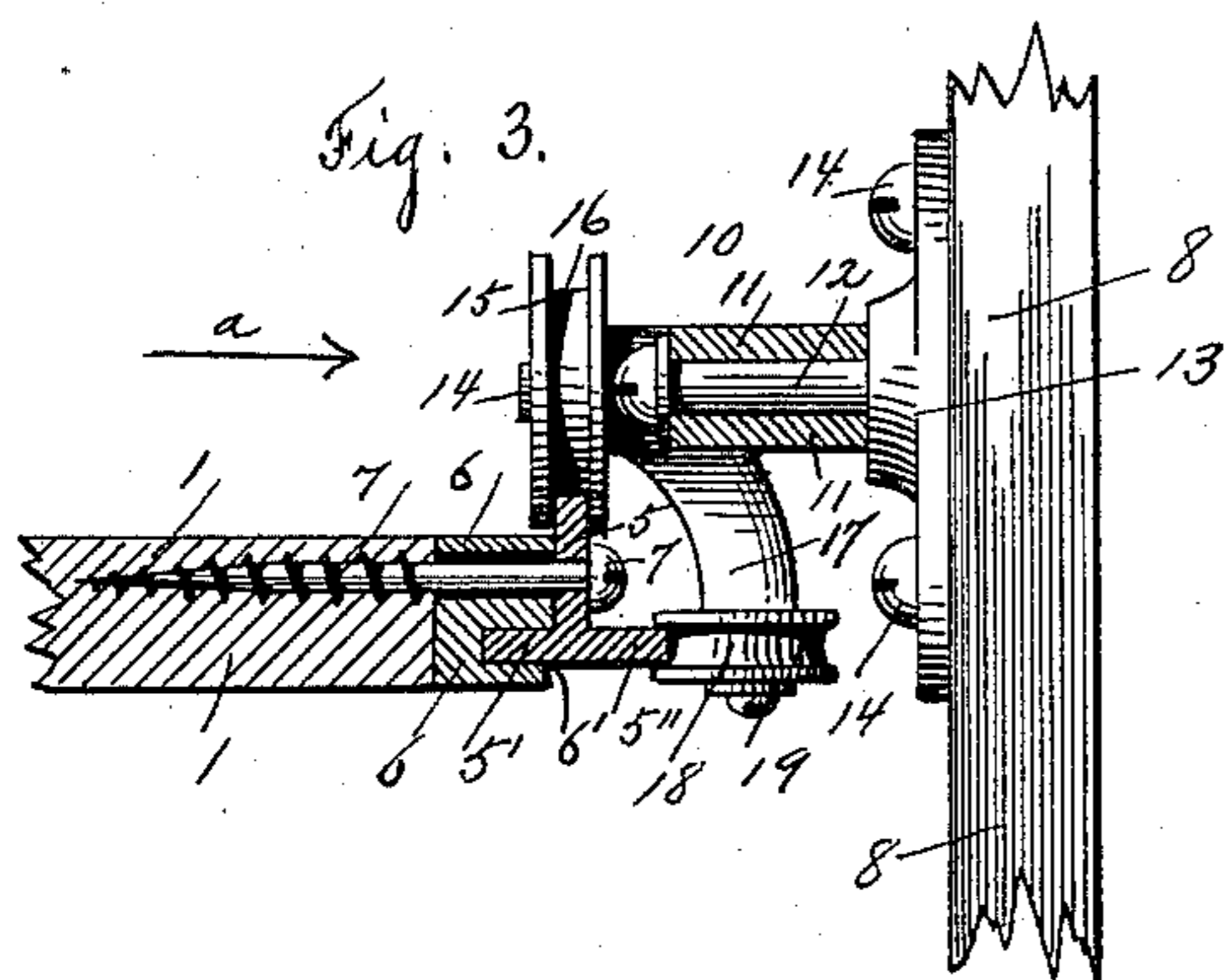
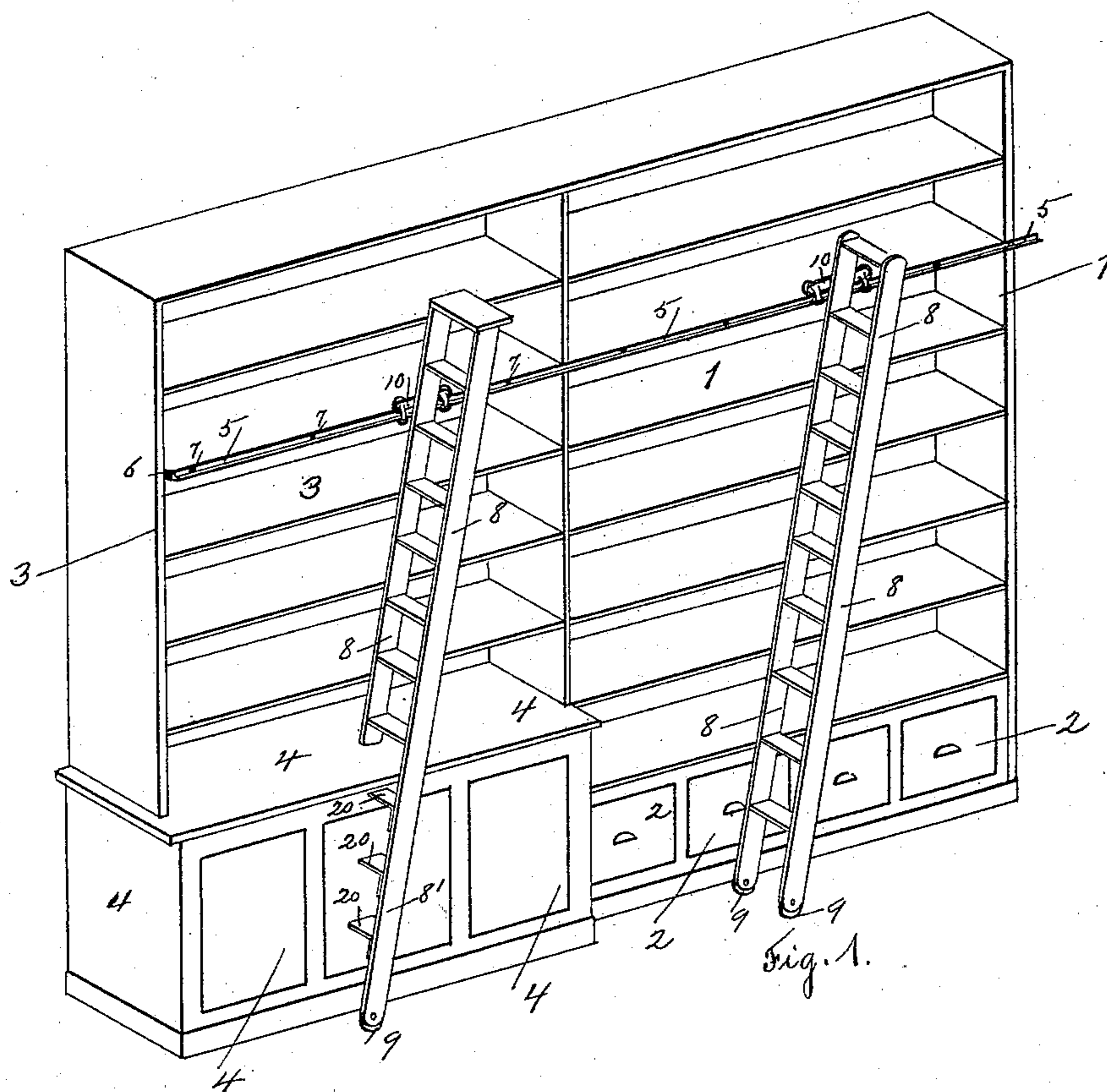


(No Model.)

A. H. FISHER.
RAILROAD STEP LADDER.

No. 470,374.

Patented Mar. 8, 1892.



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ALMON H. FISHER, OF WORCESTER, MASSACHUSETTS.

RAILROAD STEP-LADDER.

SPECIFICATION forming part of Letters Patent No. 470,374, dated March 8, 1892.

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To all whom it may concern:

Be it known that I, ALMON H. FISHER, a citizen of the United States, residing at Worcester, in the county of Worcester and State of Massachusetts, have invented certain new and useful Improvements in Railroad Step-Ladders; and I do hereby declare that the following is a full, clear, and exact description thereof, which, in connection with the drawings making a part of this specification, will enable others skilled in the art to which my invention belongs to make and use the same.

My invention relates to an improvement in railroad step-ladders; and the object of my invention is to improve upon the construction of railroad step-ladders as now ordinarily made, and to provide a ladder extending in a direction relatively to the shelves with its edge or side toward the shelves and provided with a carriage having rollers thereon. Said carriage is pivotally attached to the edge or side of the ladder toward the shelves and adapted to travel on a rail secured to the front edge of the shelves.

Heretofore in the construction of railroad step-ladders, in which the edge or side of the ladder is toward the shelves, said ladders have been made to travel on rails suspended from the ceiling. By this construction the ladder must be made of sufficient length to extend from the ceiling to the floor, even if the shelves in connection with which the ladder is used do not extend more than half-way to the ceiling, and, further, by attaching the rails on which the ladder travels to the ceiling it is necessary to mar and injure the ceiling and in cases where there is a skylight or opening in the ceiling it is impossible to arrange and secure the rails for the ladder in a proper manner.

In my improved construction of railroad step-ladders I dispense entirely with a track secured to the ceiling, and I provide a step-ladder having its edge or side extending toward the shelves and pivotally attached at its upper part to a single carriage provided with rolls adapted to travel on a rail, which rail is attached to the front of the shelves themselves.


I will now proceed to describe my improvements in railroad step-ladders.

Referring to the drawings, Figure 1 is a

perspective view of a series of shelves and my improved step-ladder connected therewith. The ladder at the left of the figure illustrates a modified construction of the ladder to be hereinafter described. Fig. 2 is a detail, on an enlarged scale, of the carriage adapted to travel on the rail and pivotally attached to the inner side or edge of the ladder, looking in the direction of arrow *a*, Fig. 3; and Fig. 3 is a partial sectional view on line *x x*, Fig. 2, looking in the direction of arrow *b*, same figure, a section of a shelf and the supporting-rail and means for securing the rail to the edge of the shelf being shown in this figure.

In the accompanying drawings, 1 is a series of shelves having drawers 2 in the lower part thereof. Said drawers and shelves extend in the same vertical plane from the floor to the top of the shelves.

3 is a second series of shelves, and 4 is a counter with its front edge extending out beyond the shelves 1 and 3.

5 is a rail, preferably made  shape in cross-section, as shown in Fig. 3. The rail 5 is preferably attached to the front edge of one of the rows of shelves in the manner shown in Fig. 3 and by means of a supporting-strip 6, preferably of the same thickness as the shelf and adapted to extend along the front edge thereof and provided with a slot or groove 6' in its lower outer edge, into which extends the flange 5' of the rail 5. The rail 5 has its bearing and is supported in the strip 6, which is preferably made of metal and is secured thereto by means of screws 7, one of which is shown in Fig. 3. Said screws 7 extend through holes in the upright part of said rail and through holes in the upper part of the supporting-strip 6. It will thus be seen that by means of screws 7 the rail 5 is secured to the supporting-strip 6, and at the same time the supporting-strip 6 is secured to the front edge of the shelves. By this construction of the supporting-strip 6 and rail 5 the strip and rail can be quickly and economically secured in place on the shelves.

The step-ladder 8 is of any ordinary form and is provided with rollers 9 at its lower end, adapted to travel on the floor. The ladder 8 extends in a direction relatively to the shelves, with its inner side or edge toward the shelves,

and is adapted to travel back and forth in front of the shelves in this position.

The ladder 8 is connected with the rail 5 by means of a carriage 10, which is pivotally secured to the inner side or edge of the ladder near its upper part.

The carriage 10 consists of a bar 11, having a hole in the central part thereof, through which extends a pin 12. The inner end of said pin is secured in a plate 13, secured by screws 14 on the inner edge or side of the ladder 5. (See Figs. 2 and 3.) The pin 12 forms a pivot on which the ladder may be moved relatively to the carriage 10. The bar 11 has at each end, on the outer side, thereof a stud 14, on which are supported and turn rolls or wheels 15, having grooves 16 therein. There are preferably two rolls 15, which travel on the top of the rail 5, as clearly shown in Fig. 3.

Extending downwardly and inwardly from the bar 11 of the carriage 10, at each end thereof are arms 17, on the lower ends of which are supported and adapted to turn rolls 18, secured to the arms 17, in this instance by screws 19. The rolls 18 are grooved and adapted to travel on the outer flange 5'' of the rail 5, as clearly shown in Fig. 3. By means of the rigid arms 17, carrying the rolls 18, the position of the rolls 15 and 18 relatively to the track 5 is fixed, and by this construction of the carriage 10 the raising of the carriage off of the supporting-rail is prevented, and the tilting of the carriage on the rail is also prevented.

In order to connect the carriage 10 with the rail 5, it must be passed over the end of the rail.

It will thus be seen from the above description in connection with the drawings that I am enabled to pivotally connect the step-ladder at its inner side or edge with the carriage, which travels on the rail, so that said ladder will be sufficiently rigid and properly held in position as it is moved back and forth in front of the shelves.

In case the shelves have a counter extending beyond the vertical plane of the shelves, as shown in Fig. 1, I cut off one side of the ladder at the lower part thereof, leaving only one leg 8' extending down to the floor. Said leg is provided with brackets or steps 20, rigidly secured thereto. By this construction the step-ladder extends partially over the projecting counter 4, and at the same time the inner edge or side of the ladder can be attached directly to the carriage, which travels on the rail secured to the front of the shelves.

The inner leg of the ladder is preferably cut off, so as not to come in contact with the top of the counter 4 to strike against any obstacles thereon, and by means of the carriage 10, pivotally secured to the inner edge or side of the ladder, and the projecting leg 8', having a roller 9 thereon bearing on the floor, the ladder is held sufficiently rigid and

sustained in proper position to travel back and forth in front of the shelves and counter.

The advantages of my improvements in railroad step-ladders will be readily appreciated by those skilled in the art.

I provide a step-ladder which travels in front of the shelves, with its side or edge toward the shelves, and which is connected with a carriage which travels on a rail secured to the front edge of the shelves or in front of the shelves, instead of to the ceiling, as heretofore.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a railroad step-ladder, the combination, with a rail adapted to be secured to the front of the shelving, of a ladder having a carriage pivotally attached to one side or edge thereof at the upper part thereof, said carriage provided with rolls adapted to travel on said rail and support the ladder, substantially as set forth.

2. The combination, with a step-ladder, of a carriage pivotally attached to one edge or side of the ladder at the upper part thereof and provided with rolls adapted to travel on a track and support the ladder at its upper part, substantially as set forth.

3. The combination, with the shelving and a rail attached to the front edge of a row of shelving, of a step-ladder adapted to extend with its edge or side toward the shelving and pivotally attached on one side or edge at its upper part to a carriage provided with sets of rolls adapted to travel on said rail and said carriage, substantially set forth.

4. In a railroad step-ladder, the combination, with a rail extending in front of the shelving and means for supporting and securing said rail to the shelving, of a step-ladder adapted to travel in front of the shelving, with its edge or side toward the shelving, said ladder being pivotally attached at one edge or side to a carriage provided with sets of rolls adapted to travel on said rail and having rollers on its lower end to travel on the floor, substantially as set forth.

5. The combination, with shelving having a counter extending beyond the shelving and a rail secured to the front of the shelving, of a step-ladder extending with its edge or side toward the shelving and a carriage provided with sets of rolls adapted to travel on said rail, said carriage pivotally attached to the edge or side of the ladder toward the rail and the lower part of the ladder cut away to allow it to extend over the counter of the shelving, with one leg provided with a roller adapted to travel on the floor, substantially as set forth.

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