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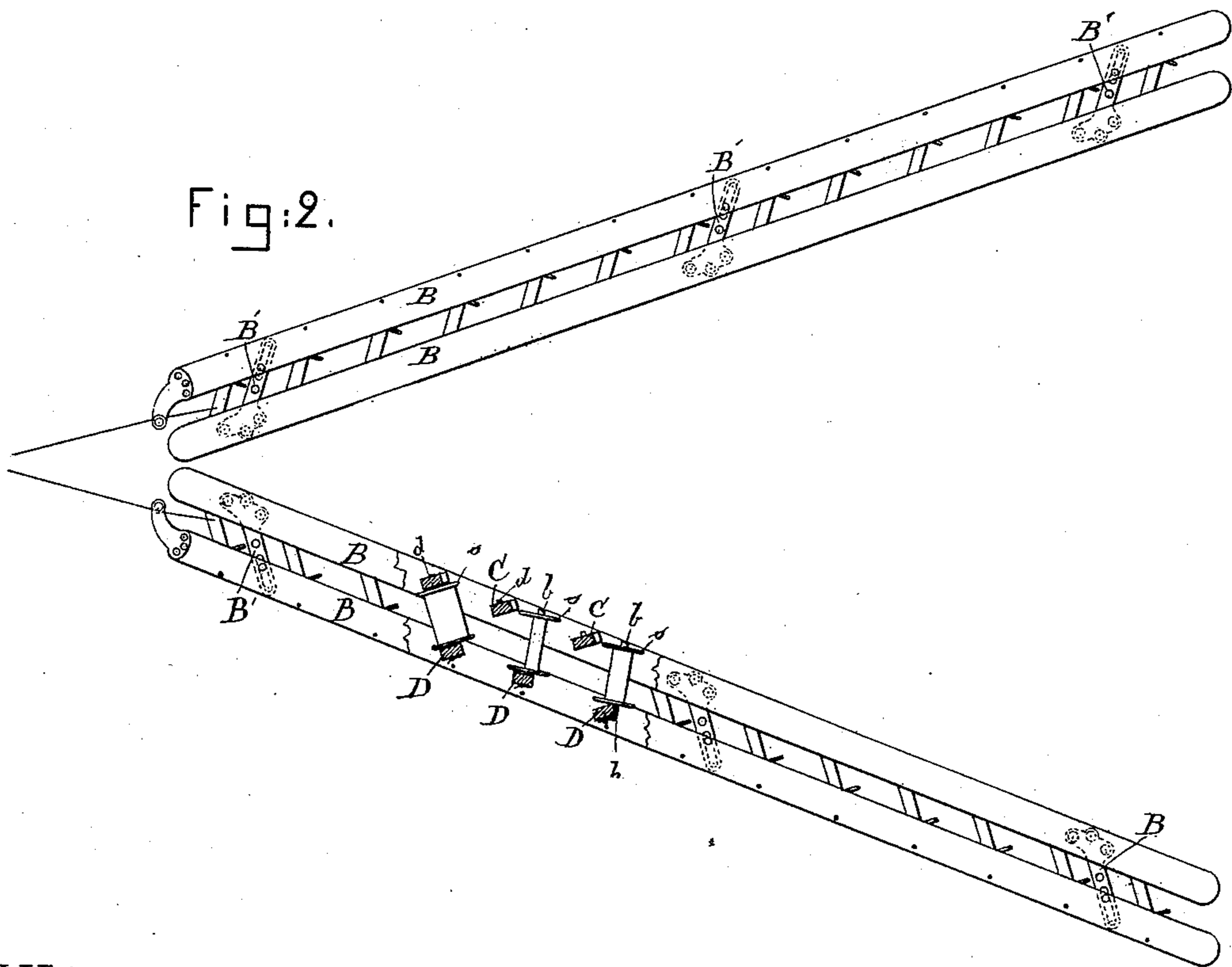
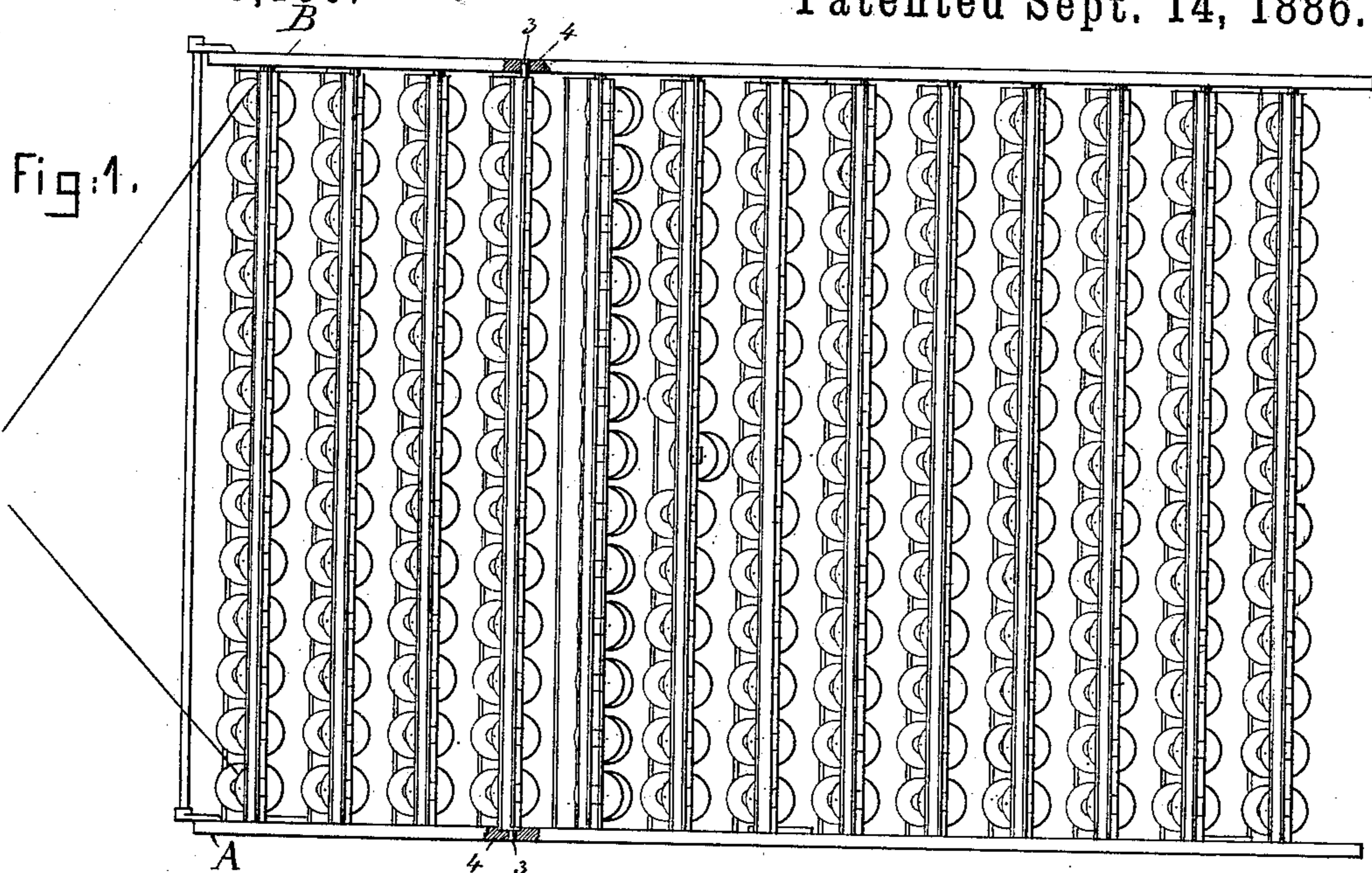
2 Sheets—Sheet 1.

C. H. HOWARD.

CREEL FOR WARPING OR BEAMING MACHINES.

No. 349,100.

Patented Sept. 14, 1886.



Witnesses.

Frederic L. Emery
John F. C. Pinter

Inventor.

Charles H. Howard
by Leroy & Gregory attys

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2 Sheets—Sheet 2.

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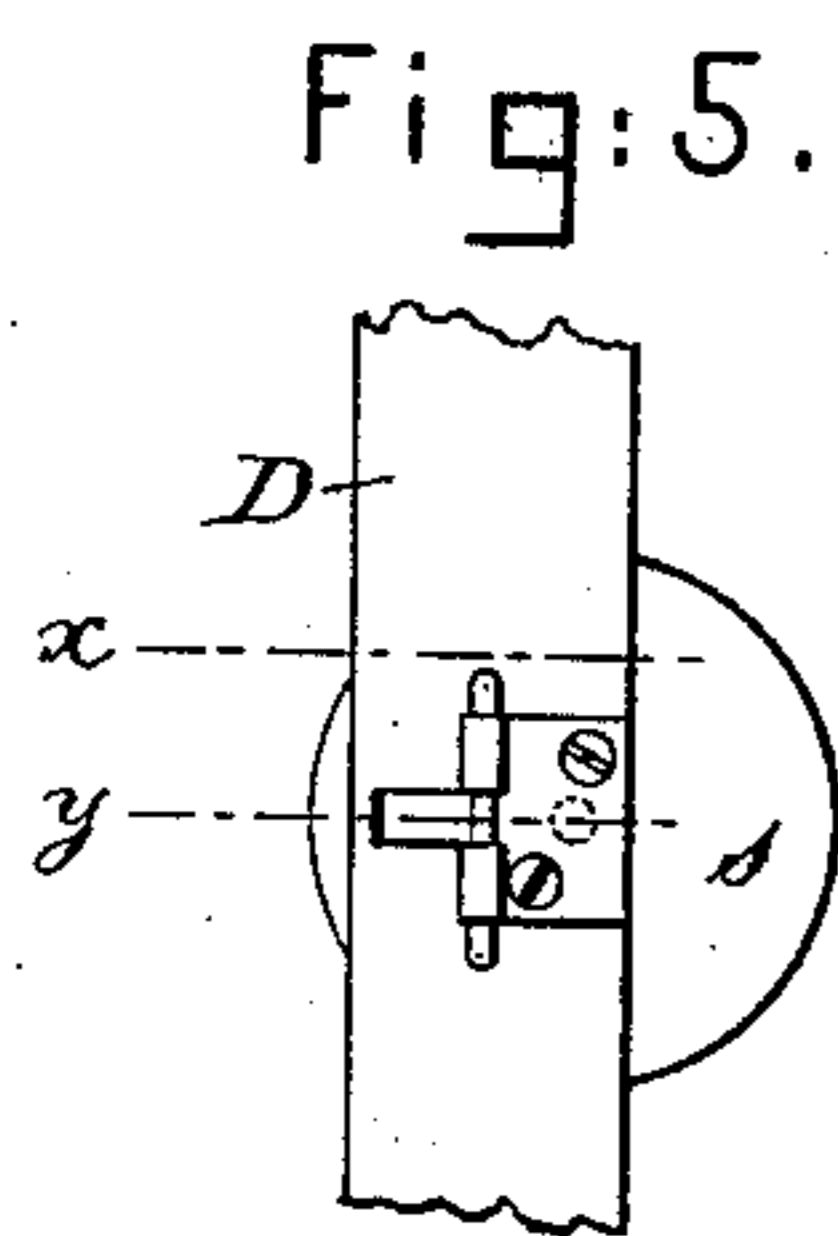
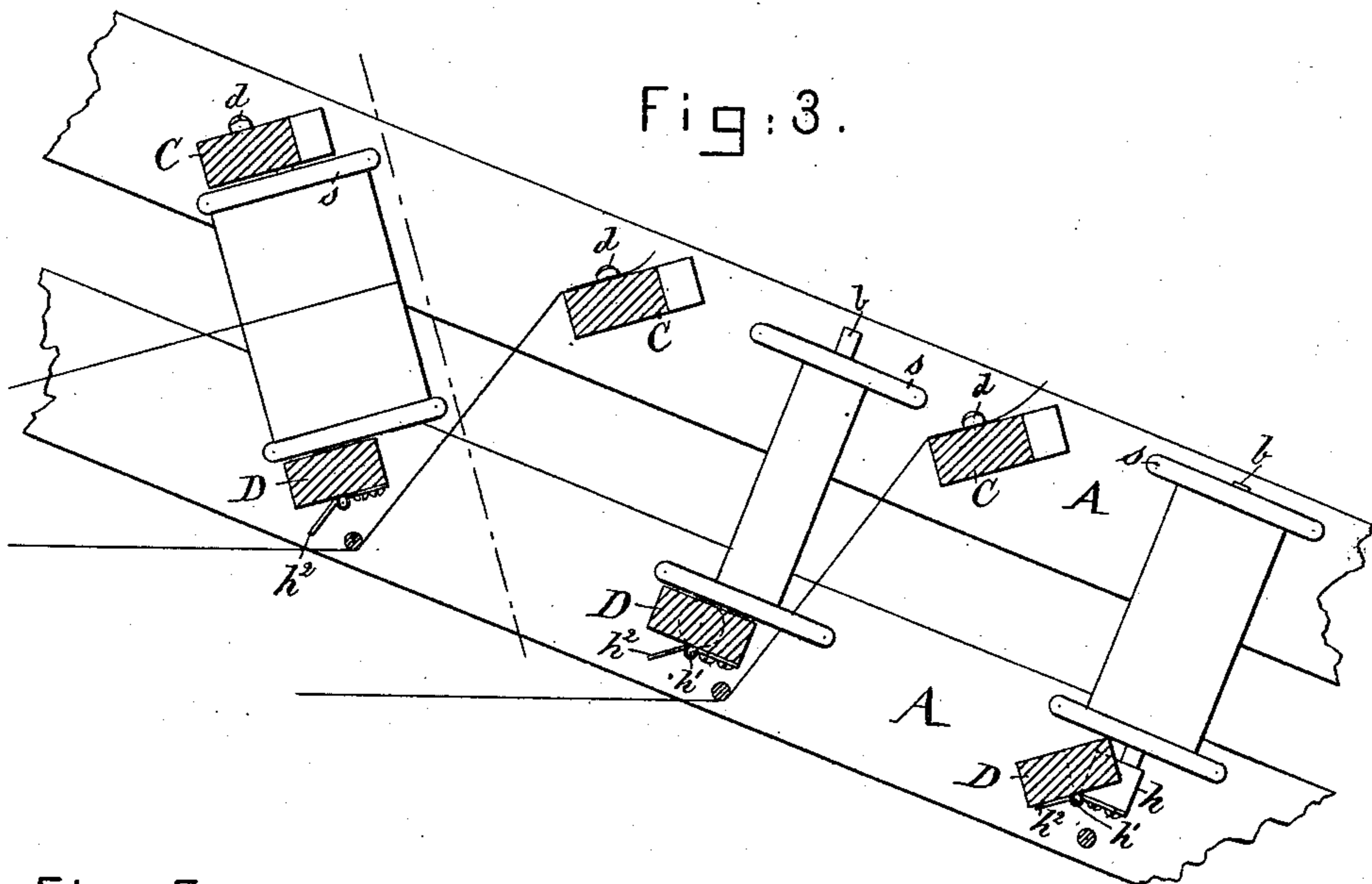


Fig: 4.

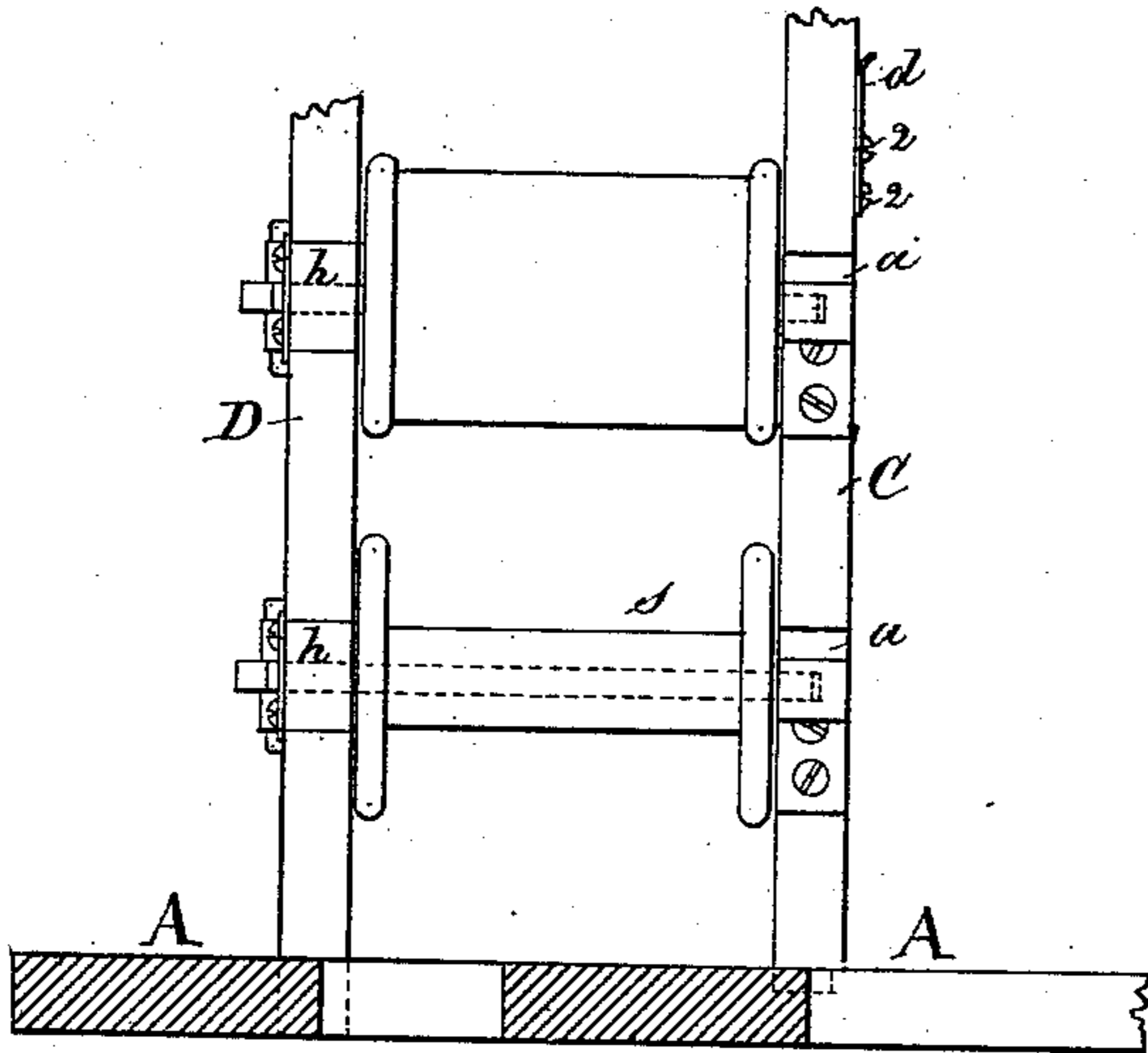


Fig: 8.

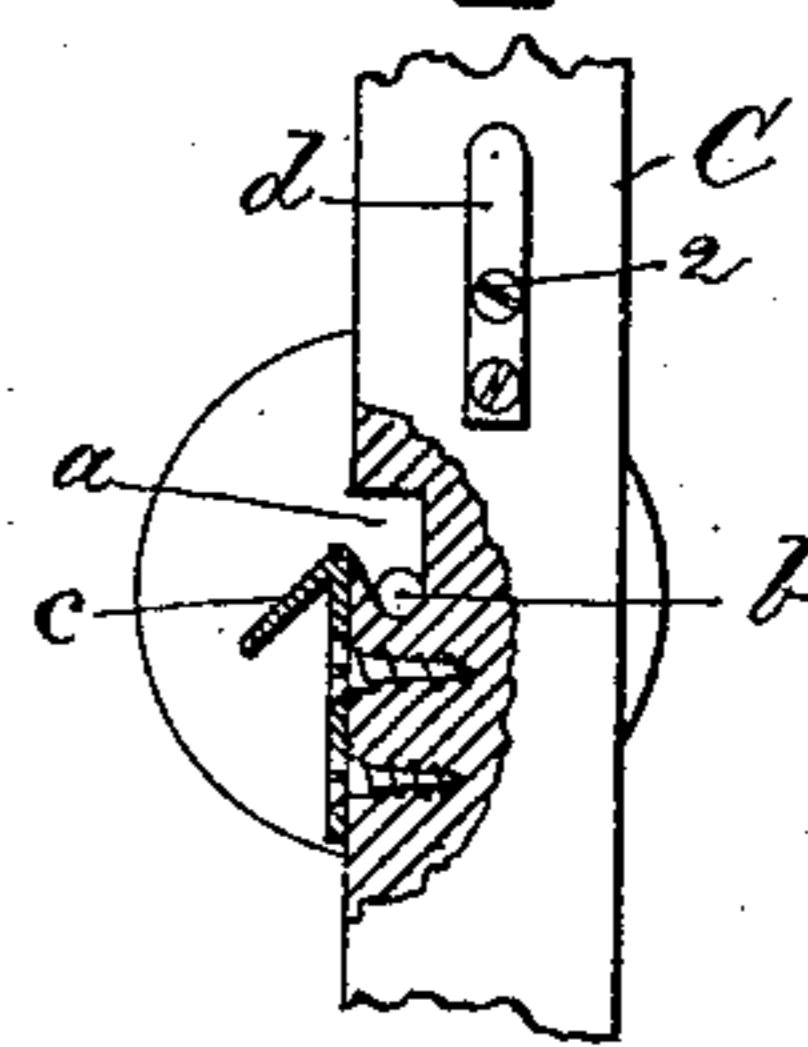


Fig: 6.

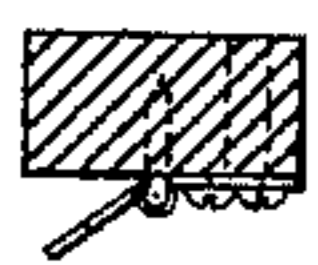
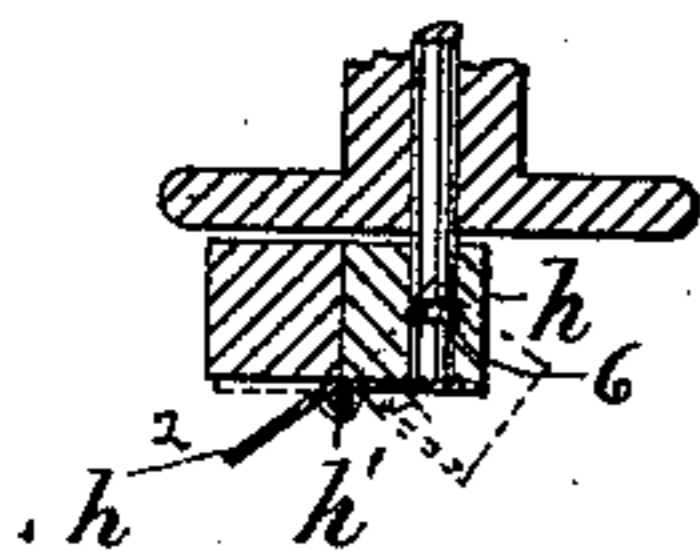


Fig: 7.



Witnesses.
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UNITED STATES PATENT OFFICE.

CHARLES H. HOWARD, OF GREAT FALLS, NEW HAMPSHIRE.

CREEL FOR WARPING OR BEAMING MACHINES.

SPECIFICATION forming part of Letters Patent No. 349,100, dated September 14, 1886.

Application filed November 30, 1885. Serial No. 184,299. (No model.)

To all whom it may concern:

Be it known that I, CHARLES H. HOWARD, of Great Falls, county of Strafford, and State of New Hampshire, have invented an Improvement in Creels for Warping or Beaming Machines, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

10 This invention has for its object the lessening of time in doffing the creel, and to save loss in bobbins owing to breakage.

In creels such as heretofore and now commonly used the doffing has been done as follows—viz: The operator first takes into the space between the arms of the creel two large cases, one containing full and the other empty spools, and beginning at the top spool on the row next to the point of the creel she takes out from two to ten empty spools consecutively, and lays upon a spool next below those removed the broken ends of the threads running to the warper, the said ends being previously attached to the spools which were so removed. This done, she places in the creel a like number of full spools, and to the yarn thereon she ties the broken ends running to the warper, continuing this process throughout the creel. In practice the operator keeps the case of full spools as near to herself as possible, as she must put the full spools in the creel and tie the broken ends to the yarn thereon one after another, and consequently the case for the reception of the empty spools is placed some distance from her, and she throws the empty spools into the case, which results in great damage to and loss of spools. The doffing of a creel in this way takes from half an hour to three hours, according to the size of the creel and the expertness of the operator. To lessen the time required for this work, and to save spools, I have provided the creel-frame with a series of spindles or skewers, which are so held as to be capable of being swung or turned out away from the inner stiles or portions of the creel, and also preferably so as to rotate with the spool.

50 In my invention the operator may bring into the creel-space a case for empty spools, and beginning at the front of the creel swing out the spindles or skewers holding the empty spools, and beginning at the top remove each

spool in the row, placing the broken ends freed from each spools in its proper holder and the empty spools in the case, continuing until all the empty spools have been removed and placed in the case. This plan avoids the necessity of throwing the spools into the case, for the case is close to the operator and she can drop them into the case without breaking them. Having removed the empty spools, she brings into the creel-space a case containing full spools, and beginning at either end of the creel puts them on their proper spindles or skewers, and ties to the threads of the spools the broken ends, thus saving much time.

The particular features in which my invention consists will be hereinafter pointed out in the claims at the end of this specification.

Figure 1 in side elevation represents a creel embodying my invention, the top and bottom board next one of the outer stiles being broken out to show the tenons on the stiles, the fifth stile from the left being turned; Fig. 2, a top view of Fig. 1 with the top boards partially broken away; Fig. 3, an enlarged detail showing portions of the stiles or uprights in section, and portions of the bottom boards and spools in different positions, the thread-holders being upon the stiles. Fig. 4 is a detail of portions of the bottom board in section, portions of the stiles, and two spools. Fig. 5 is a detail showing part of one stile, the end of one spool, and the block holding the spindle or skewer. Figs. 6 and 7 are sections in the lines *x* and *y*, respectively, Fig. 5; and Fig. 8 is a detail view showing part of an inside stile with bearings for the end of the spindle or skewer, the figure also showing a thread-holder.

The creel is composed of bottom boards, A A, top boards, B B, held together by straps B', inside stiles or uprights, C, and outside uprights or stiles, D. The inside stiles, C, are notched, as best shown at *a*, Fig. 8, to form bearings for the reception of the free ends of the spindles or skewers *b*. The inside stiles, C, next the notches referred to, may be provided with metal strikers *c*, to aid in introducing the spindles. The inside stiles are provided with thread-holders *d*, (herein shown as spring-fingers,) attached thereto by screws 2 2, there being in practice one holder for each spool to be used. The outside stiles at their upper and lower ends have tenons 3, which enter loosely

mortises 4 in the bottom and top boards, A B, respectively, (see Fig. 1,) so that the said stiles may be moved for a short distance not only in the direction of their length, but also about their axis—that is, be partially rotated, as from the position shown at the left of Fig. 3 to the position shown by the middle stile D, Fig. 3—to thus enable the free ends of all the spindles or skewers operatively connected with the said stile to be simultaneously disengaged from their bearings in the inside stiles, thus leaving the spools placed on the said spindles or skewers ready to be removed after the ends of the threads connected with the said spools have been properly caught into or made to engage the thread-holders. It is also advisable to have each spindle or skewer *b* so held that its free end may be independently disengaged from its bearing in the inside stile, and to this end the outside stile, D, may have a series of blocks, *h*, pivoted thereto at their rear ends at *h'*. By this construction each block turning on its own pivot or hinge independently of the stile itself permits, as stated, the independent movement of each spindle with respect to its engagement with the inside stile. To enable the spindle or skewer to rotate with the spool, and thus reduce friction, I have provided each spindle with an annular groove, which latter, when the spindle is inserted in the said block, receives a pin, 6, (see Fig. 7,) the said pin also serving to prevent longitudi-

nal movement of the spindle in the said block. As herein shown, each block *h* has attached to it a back stop, *h*², which by its contact with the stile, as at the right of Fig. 3, acts to limit the swinging movement of the spindles or skewers on the stile. In Fig. 3 the stile at the left is in its normal position, but the center stile at the right of it is turned on its axis to swing aside the spindles or skewers secured thereto and their spools thereon.

I do not claim the combination of a creel-frame with spool-holders adapted to be rotated about their vertical axes within said frame, and to be supported by said frame.

I claim—

1. The bottom and top boards, and the stiles having bearings for the free ends of the spindles or skewers, combined with the pivoted stiles and their attached spindles or skewers, substantially as described.

2. The stationary or bearing stiles, the bottom and top boards, and the spindles or skewers, combined with the pivoted stiles and the blocks *h*, pivoted in said pivoted stiles and receiving one end of and holding the spindles or skewers, substantially as described.

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

CHARLES H. HOWARD.

Witnesses:

ARTHUR W. BEARDSSELL,
ARTHUR H. BALL.