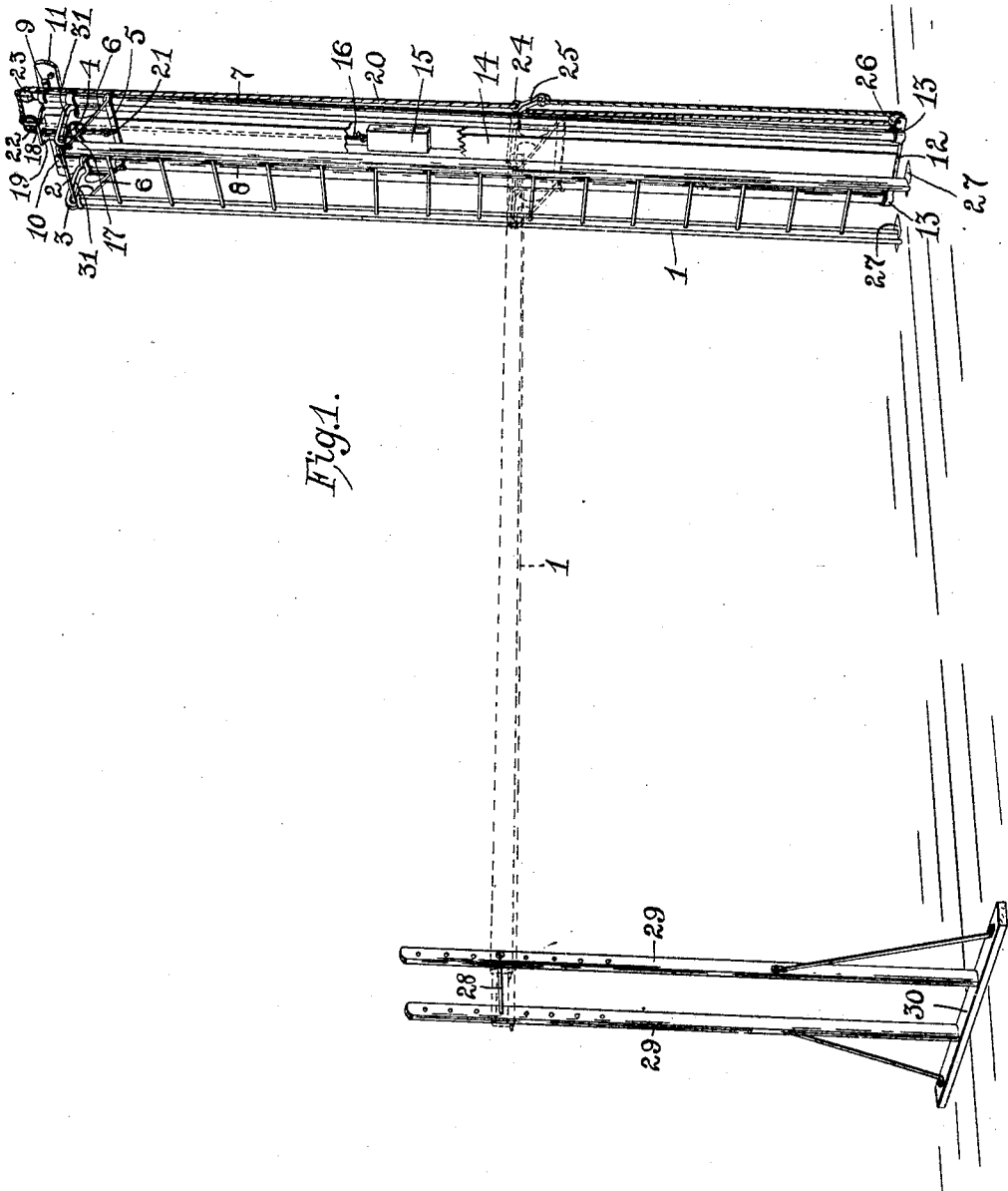


M. B. REACH.
GYMNASIUM LADDER.
APPLICATION FILED APR. 1, 1909.

932,902.

Patented Aug. 31, 1909.
2 SHEETS—SHEET 1.



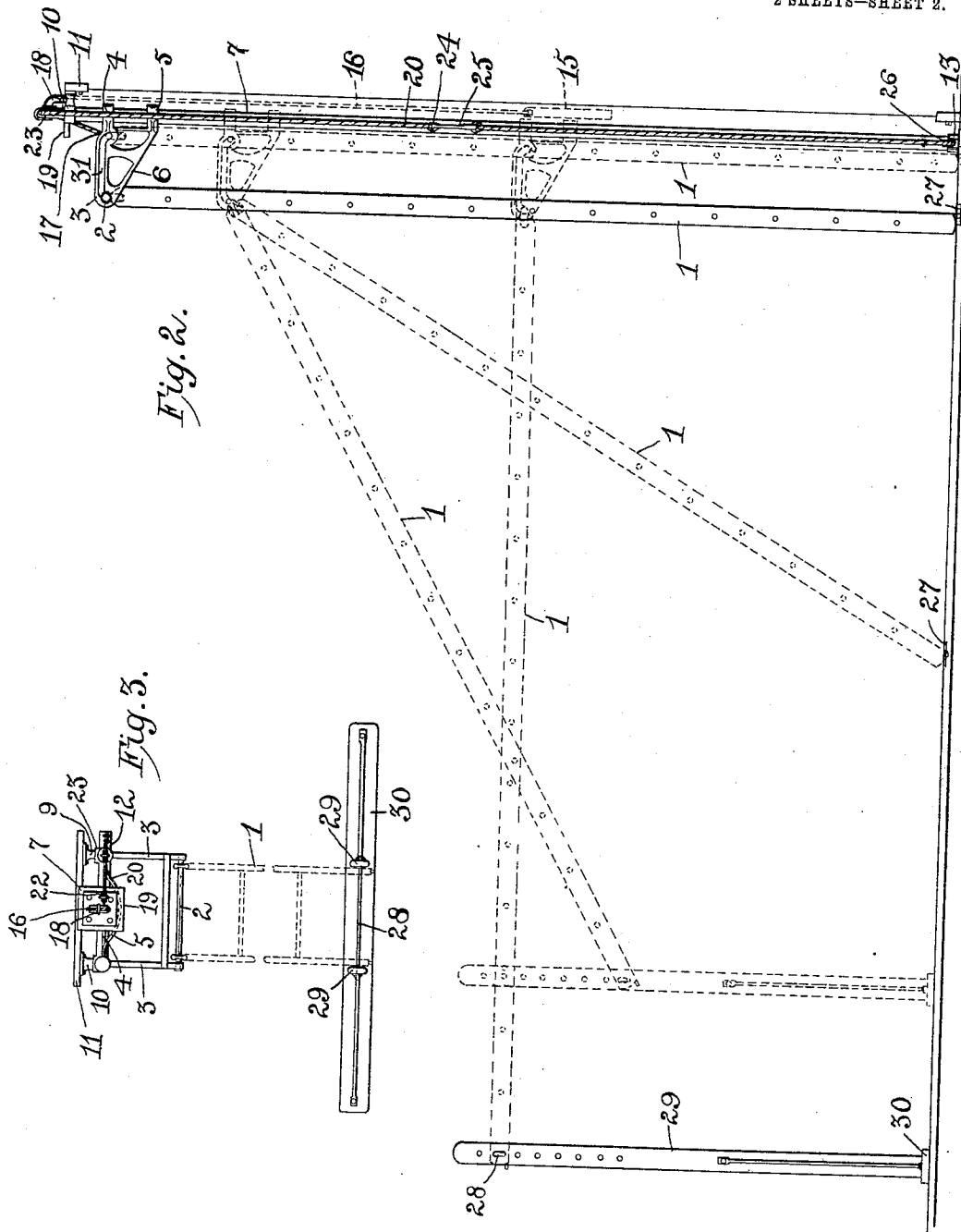
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Geo. R. Tolson.
Bentley Stahl

Inventor:
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By *Spear, Middleton & Spear*
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Attest:
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 Bent M. Stahl.

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UNITED STATES PATENT OFFICE.

MILTON B. REACH, OF SPRINGFIELD, MASSACHUSETTS.

GYMNASIUM-LADDER.

932,902.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed April 1, 1909. Serial No. 487,190.

To all whom it may concern:

Be it known that I, MILTON B. REACH, a citizen of the United States, residing at Springfield, Massachusetts, have invented certain new and useful Improvements in Gymnasium-Ladders, of which the following is a specification.

My invention relates to gymnasium apparatus, and particularly to a gymnasium ladder, my object being to provide a construction which will facilitate the adjustment of the ladder to different inclined positions or to a horizontal position, or to enable the ladder to be set upright away from the wall or set close against the wall in vertical position when not in use.

The invention consists in the features and combination and arrangement of parts hereinafter described and particularly pointed out in the claims.

In the accompanying drawings:—Figure 1 is a perspective view of the invention; Fig. 2 is a side elevation; and Fig. 3 is a plan view.

In these drawings, 1 indicates a ladder suitable for gymnasium use, said ladder being pivotally connected at its upper end by a pivot bar 2 to a cross head adapted to have vertical movement, and comprising forwardly extending bracket arms 3 connected by cross bars at top and bottom, said cross bars being marked 4 and 5, inclined braces 6 being provided to strengthen the cross head or bracket. The cross head slides upon two tubular uprights 7 and 8 attached by clips or brackets 9 and 10 to a board 11 which is fixed in any suitable manner to the wall, and at their lower ends the tubular bars are held to a cross bar 12 by sockets 13. Between the tubular uprights a weight inclosing casing 14 is arranged within which is adapted to slide a counterbalance weight 15 connected by a rope 16 with the sliding cross head, the said rope being attached to the cross head at 17 and passing up over a pulley 18 supported on a plate or bracket 19 attached to the supporting board or member 11 at the top of the structure. This counterweight counterbalances the weight of the ladder, and the arrangement is such that the ladder may be adjusted by a boy.

In adjusting the ladder to different inclinations or to a horizontal position, the cross head is lowered from the position shown in Fig. 1, in full lines, to the desired point, such, for instance, as shown in dotted

lines in said figure. In order to control the adjustment of the ladder, and to lock it in any position to which it may be adjusted, I provide a flexible connection, as a rope 20, attached to the cross head at 21 and passing up over a pair of pulleys 22, 23, mounted at the top of the structure, the rope then passing downwardly through an eye 24 of the toggle lever or arm 25, the rope thence passing under a pulley 26 journaled in one of the socket pieces 13 at the lower part of the structure, and extending thence upwardly, where it is connected with the outer end of the toggle arm or lever 25, as shown in Fig. 1. In order to adjust the ladder, the toggle arm or lever 25 is raised to a substantially horizontal position, so that the main portion of the rope is free to slip through the inner eye of the toggle arm, and the cross head, together with the pivoted end of the ladder, may then be raised or lowered while manipulating the main part of the rope, and when the desired position of the cross head and ladder has been reached, the toggle arm or lever will be allowed to assume its normal inclined position, as shown in Fig. 1, when it will kink and grip the rope and hold it against further movement upwardly or downwardly, and the cross head, together with the pivoted end of the ladder, will thus be maintained in the position to which it is adjusted.

The free end of the ladder may be set in a suitable floor plate as at 27, or it may be made to rest upon a cross bar 28 set at any desired elevation and supported by the posts 29 of the supporting frame 30.

The ladder may be made to assume a vertical position at the outer ends of the bracket arms of the cross head, as shown in Fig. 1, or it may be set close to the wall for storage when not in use. For this purpose the cross bar 2 at the upper end of the ladder has its ends passing through slots 31 formed in the bracket arms of the cross head, said slots having recesses or depressions at both their outer and inner ends, so that, when the ladder is in the position shown in Fig. 1, the cross bar 2 will have dropped into the outer recesses or depressions in the bracket arms, whereas, when it is desired to store the ladder out of the way against the wall, it is first slightly lifted to raise the cross bar or pivots from the outer recesses of the bracket arms, and the ladder is then pushed toward the wall, its pivot sliding in the horizontal

slots of the bracket arms and finally dropping into the inner recesses or notches at the ends of the horizontal slots so that the ladder will then be maintained in vertical position close against the wall.

While I have described above the structure best known to me for carrying out the principle of my invention, it will be understood that I do not limit myself to this precise construction, as this may be varied without departing from the spirit of my invention.

It will be seen that my adjusting device consists of a flexible member connected to the cross head or ladder support at one end, passing over and under pulleys and returning upon itself, its other extremity having thereon means to grip or connect with the main part of the flexible connection, and it will be understood that I do not limit myself either to the character of this flexible connection or to the gripping or connecting means between the end thereof and the main portion.

What I claim is:—

1. In combination a ladder, a sliding cross head, a pivotal connection between the ladder and cross head, a guide pulley fixed

above the top of the ladder, a guide pulley at the floor, a rope attached to the cross head passing thence over the upper pulley and down under the lower pulley, and thence upwardly, with means for attaching the end of the rope to the main portion adjustably, substantially as described.

2. In combination a ladder, a sliding cross head to which the ladder is pivoted, a pair of uprights on which the cross head slides, a counterbalance weight moving between the two uprights and connected with the cross head, a centrally disposed upper pulley and an upper pulley disposed laterally in respect thereto and to the ladder, a laterally disposed lower pulley, a rope passing from the cross head up over the centrally disposed pulley thence laterally over the second upper pulley, and then down and around the lower pulley, and means for adjustably connecting the free end of the rope with the main part of the rope, substantially as described.

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

MILTON B. REACH.

Witnesses:

MAY JAMESON,
C. H. KILPATRICK.