To whom it may concern:

Be it known that I, GUSTAVE J. THARAN, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Undermotions for Looms, of which the following is a specification.

My present invention pertains to an improved undermotion or spring-board for looms, the construction and advantages of which will be hereinafter set forth, reference being had to the annexed drawings, wherein—

Figure 1 is a perspective view of the spring-board; Fig. 2, a front elevation of so much of the structure as is necessary to show the parts adjusted for a relatively short movement of the harness and a consequent easy pull upon the springs; and Fig. 3, a similar view, the adjustment being such that the springs and levers exert a greater force than under the arrangement illustrated in Fig. 2.

The object of my invention is to provide an undermotion or spring-board for looms which will permit a maximum amount of movement of the harness-frames or heddles and at the same time place a minimum amount of strain or work upon the springs, and, further, in so constructing and arranging the parts that the adjustment of the cams and springs may be readily varied according as the movement of the harness be small and the work light or the movement large and the work put upon the springs correspondingly heavier.

Referring to the drawings, and more particularly Fig. 1, A denotes the base of the stand or frame, from each end of which arise vertical columns or posts B and at the center a pair of columns or posts C, the latter being forked at their upper ends, forming branches or arms D.

A shaft E extends across between each pair of columns or posts B, and upon said shaft are eccentriically pivoted a series of cams E', having integrally-formed levers or arms F. These elements may or may not be formed integral; but the construction shown—namely, the integral formation—is preferred.

As will be noted upon reference to all of the figures of the drawings, the cam portion of the combined cam-lever is provided with a curved or rounded face G and a flat face H, said flat face being undermost. A stud or pin I extends outwardly from the curved face, and the arm or lever F also extends out from this face. Said arm is furnished with a series of notches J to provide for the adjustment of the straps K, extending thereto from the harness-frames L, or straps M, connected thereto.

Straps K pass about pulleys or guide-wheels N, mounted upon shafts supported and carried by the arms D at the upper ends of the columns C. In the construction illustrated a continuous strap K is shown as connecting the cam-levers to the harness-frames. It is looped at both ends. One loop is hooked on the cam-lever and then passed up between the pulleys N, and strap M is passed through the other loop.

Connected to the stud or pin I of each cam is a strap O, the opposite end of which is in turn connected to one end of a spring P, the opposite end of the spring being made fast to a rod or bar Q, extending across the frame.

From the drawings and the foregoing description it will be seen that the springs, acting through strap O, the cam-levers, and strap K, tend to draw the heddles or harness-frames down against the action of any kind of dobbey or harness motion which tends to positively elevate them.

Where light work is to be done, the cam-levers are adjusted to the position illustrated in Fig. 2, wherein it will be noted that the straight faces of the cams stand approximately horizontal. As the cams are moved about their fulcrums—the shafts E—straps O tend to lengthen the springs but slightly, as is indicated by the dotted lines, and consequently exert but a correspondingly light pull down on the frame. Where heavier work is to be accomplished and a correspondingly greater movement of the heddle or harness-frame must take place, the cams are adjusted to the position indicated in Fig. 3. In this view it will be seen that the straight faces of the cams stand at approximately forty-five degrees to the perpendicular, point down, and the consequent movement of the springs being greater a greater force is exerted thereby.

These adjustments from one to another position may be made by shortening the straps K.
or connecting the springs at different points to the straps O, as will be readily understood.

Having thus described my invention, what I claim is—

1. In a spring-board for looms, the combination of a base; a series of cams pivotally mounted thereon at each end thereof; levers extending outwardly from said cams; a series of springs connected to the cams and a fixed portion of the frame; a series of guide-pulleys mounted upon the frame intermediate the cams; a series of harness-frames; and straps extending from the frame about the pulleys to the levers.

2. In a spring-board for looms, the combination of a base or stand; a series of cams pivotally mounted at each end thereof, each cam having a curved face G and a straight face H; a lever extending out from the curved face of each cam; a series of springs; a series of straps connecting said springs and the cams; a double series of guide-pulleys mounted on the stand intermediate the two series of cams; a series of harness-frames; and straps passing from the frames, about the pulleys, and connecting the levers.

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

GUSTAVE J. THARAN.

Witnesses:

ARTHUR MCKERNAN,

HUGH GRAY.