

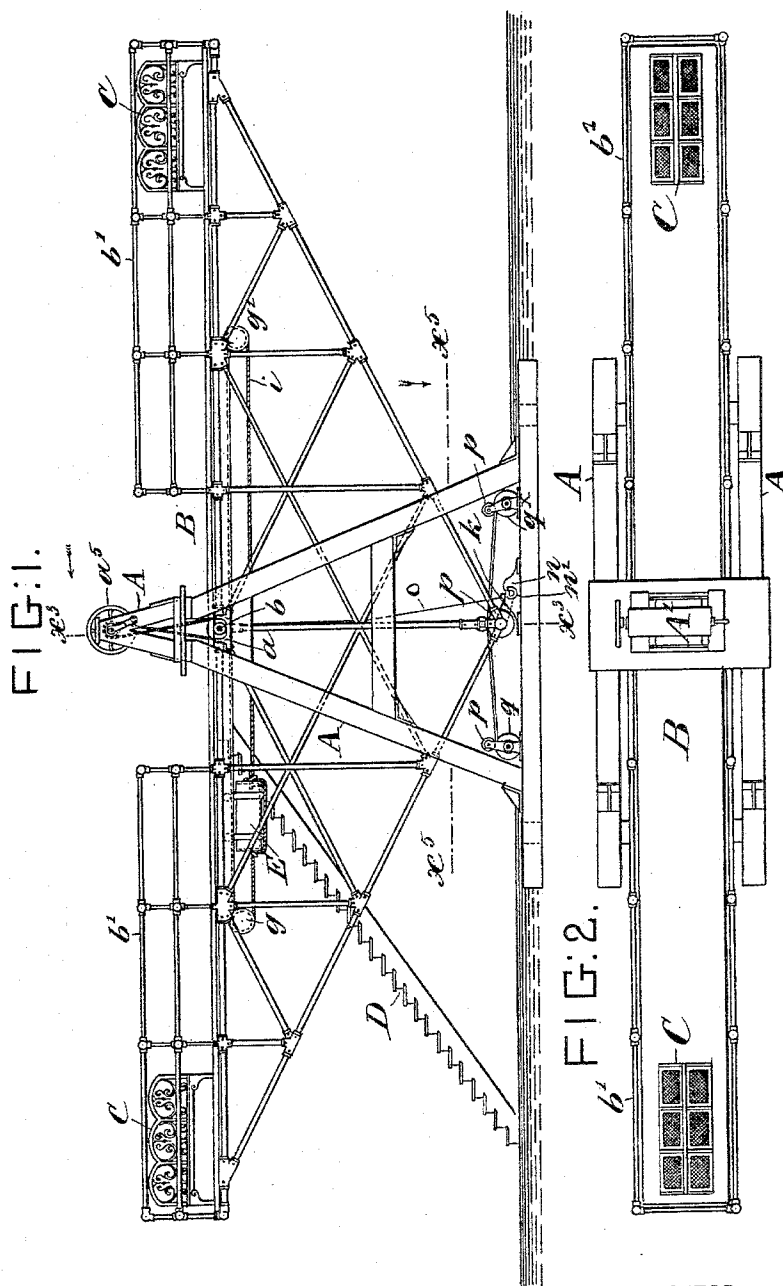
(No Model.)

2 Sheets—Sheet 1.

H. A. HAYDEN.  
SEESAW.

No. 584,131.

Patented June 8, 1897.



WITNESSES:

*J. M. Wimmer*  
*Peter A. Ross*

INVENTOR

*Henry A. Hayden*

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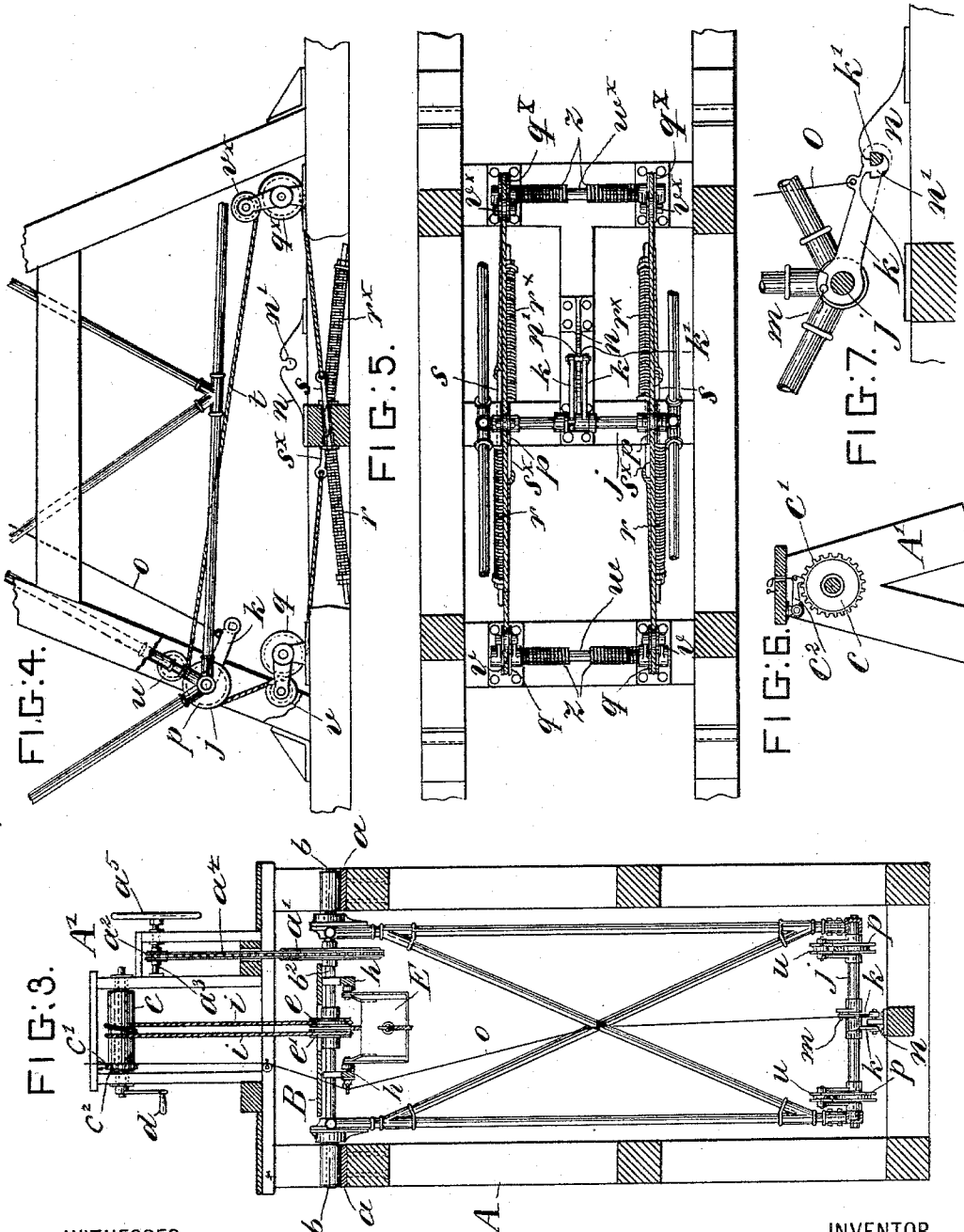
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# UNITED STATES PATENT OFFICE.

HENRY A. HAYDEN, OF JERSEY CITY, NEW JERSEY.

## SEESAW.

SPECIFICATION forming part of Letters Patent No. 584,131, dated June 8, 1897.

Application filed March 23, 1897. Serial No. 628,810. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY A. HAYDEN, a citizen of the United States, residing at Jersey City, Hudson county, New Jersey, have invented certain new and useful Improvements in Seesaws, of which the following is a specification.

This invention relates to the class of devices intended for recreation and amusement, the object being to provide a seesaw for use at seaside-resorts, fairs, pleasure-grounds, &c.

In general the device comprises a rocker or rocker-frame of considerable length mounted at its middle on pivots or trunnions and provided with means for balancing it, means for rocking it on its trunnions, and means for cushioning it elastically at the end of each rocking movement. It also has means for locking it in its horizontal position while it is receiving fares, all as will be hereinafter more fully described with reference to the accompanying drawings, wherein—

Figure 1 is a side elevation of the seesaw on a relatively small scale, and Fig. 2 is a plan of the same. Fig. 3 is a vertical transverse section of the device at the point indicated by line  $x^3$  in Fig. 1, but on a larger scale than the last-named figure. Fig. 4 is a fragmentary side view on the same scale as Fig. 3, showing the position of the parts of the spring-cushion device at the end of the movement of the rocker. Fig. 5 is a plan view of the mechanism below the line  $x^3$  in Fig. 1, but on the same scale as Fig. 3. Figs. 6 and 7 are enlarged detail views, the former showing the device for locking the weight-shifting winch or drum and the latter showing the locking device for the rocker.

Premising that the materials, mode of construction, and proportions herein shown may be varied considerably without departing materially from the invention, the device will now be minutely described as illustrated in the drawings.

A is a strong pedestal-frame constructed of two A-frames, of wood, fixed on a broad base set firmly in or on the ground, and B is the rocker, of elongated form, supported in bearings  $a$  in the frame A on trunnions  $b$  at the middle of the length of the rocker. The rocker may be in the form of a truss, or, rather, of two like triangular pendent trusses

composed of iron tubing or pipes connected by sockets in a well-known way and suitably cross-braced. The rocker B has a level-floored upper surface and a hand-rail  $b'$  for safety. It is provided at its respective ends with seats C, as seen in Fig. 1, for the riders.

The rocker is held in the horizontal position seen in Fig. 1 while it is receiving its fares or riders, and the latter mount to it by means of a suitable stair D. It is necessary to have some means of balancing the rocker in case the weight of the riders at the respective ends should be unequal, and the means employed for effecting this object will now be described.

On the pedestal-frame A is built another frame A', on which the operator or attendant stands, and in this frame is mounted a winch barrel or drum  $c$ , provided with a crank  $d$ . On a cross shaft or bar  $b^2$  in the frame, Fig. 3, and alined with the trunnions  $b$  are rotatably mounted two guide-sheaves  $e$  and  $e'$ . Two other sheaves  $g$  and  $g'$  are rotatively mounted in the rocker B out nearer to its respective ends. A weight box or carriage E is mounted to roll along tracks  $h$  under the floor of the rocker B and between the sheaves  $g$   $g'$ . This device may be a weight of any kind. A rope  $i$  is secured to one end of the weight-carriage E, passes thence out and around the sheave  $g$ , thence inward and around the sheave  $e$ , thence up to and around the drum  $c$ , thence down to and around the sheave  $e'$ , thence out to and around the sheave  $g'$ , and thence back to the weight-carriage E, to which it is secured. Thus the attendant may by turning the crank  $d$  shift the weight-carriage E along its tracks  $h$  in either direction, so as to counterbalance any extra weight at either end of the rocker. The rope should have several turns on the drum  $c$  to prevent slipping.

It has been stated that means are employed for locking the rocker B in its level or horizontal position, (seen in Fig. 1,) and the particular device herein illustrated for effecting this locking will now be described with especial reference to Figs. 4, 5, and 7.

At the pendent angle of the truss-frame of the rocker B is a transverse bar  $j$ , and hung loosely on this bar is a locking-arm  $k$ , the swing or play of which is limited by a stud

*m* on a collar on the bar *j*, Fig. 7, said stud engaging a recess in the end of the arm *k*, the recess forming limiting-shoulders. This arm *k* carries at its free end a locking-stud *k'*, which projects laterally from the arm and is adapted to play over a convex-surfaced plate *n* on the base of the frame A, in which plate is a locking-recess *n'*. (Seen clearly in Figs. 4 and 7.) When the rocker B is rocking at its maximum speed, the stud *k'* will jump over the recess *n'* as it glides along the plate *n*; but when the rocker is slowed down for stopping and the stud *k'* comes over the recess *n'* it will drop into said recess, the position of the latter being such that the engagement therewith of the stud *k'* takes place when the rocker B is horizontal, as in Fig. 1. To unlock the rocker, a cord or wire *o*, attached to the free end of the arm *k*, extends up to a point within reach of the attendant, so that he may lift the arm *k* and free the stud *k'* from the locking-recess, and, if desired, he may fasten the cord so as to keep the arm *k* elevated during the normal operation of the rocker, dropping said arm only when he wishes to stop the rocking. In order to prevent unauthorized persons from raising the arm *k* and freeing the rocker B at the wrong time—as when it is out of balance, for example—the locking-recess *n'* is made a little larger than the stud *k'*, except at its mouth or outlet, which will be just wide enough to admit the stud easily. Consequently when the rocker is unbalanced the stud will be pressed to one side of the recess and will take under an overhanging part of the wall thereof, as seen in Fig. 7, so that it cannot be lifted out until the rocker is properly balanced and brought to a perfectly level position. Preferably there will be two arms *k* to impart strength, the stud or pin *k'* extending across from one arm to the other, as seen in Fig. 5; but this use of a pair of arms is not essential to the invention.

The spring-cushion device will now be described with especial reference to Figs. 1, 4, and 5. Premising that, as here shown, there are two like spring-cushion devices, one at each side of the frame, and that this is the preferred construction, although one device will suffice, and premising, further, that as the devices are exactly alike and a description of one will suffice, a description of but one will be given. Mounted rotatively on the bar *j*, at the lower angle of the truss of the rocker, is a sheave *p*, and mounted rotatively on the base of the frame A, at equal distances from its center, are two like sheaves *q* *q'*. Two helical compression-springs *r* *r'* are arranged to abut on opposite faces of a fixed part of the frame A at its middle, and through these springs extend compression-rods *s* *s'*, which have heads or nuts to engage the outer ends of the springs and eyes in their other ends. A rope, band, or chain *t* is fastened at one end to the eye in the compression-rod *s'*, passes about the sheave *q*, thence

over the sheave *p*, thence over the other sheave *q'* on the base, and thence to the compression-rod *s*, to which it is secured. Now when the rocker B is rocked the sheave *p* travels in a curve until it reaches one of its two terminal positions, Fig. 4, and in doing so it gradually puts compression on the springs *r* *r'*, as will be seen from inspection. Thus the movements of the rocker B are cushioned in both directions.

In order to prevent the rope *t* from jumping off the sheaves, suitable keepers may be employed. In the drawings these are represented as smaller sheaves. The keeper-sheave *u* serves to keep the rope in place on the sheave *p* and the keeper-sheaves *v* and *v'* perform the same service for the respective sheaves *q* and *q'*; but in the latter case the keeper-sheave is carried by arms which swing radially about the bars *w* and *w'*, on which are mounted the respective sheaves *q* and *q'*, so that the keeper-sheaves may swing out of the way, as seen at the left in Fig. 4. To bring the keeper-sheave back to its position over the top of the main sheave after it has been displaced, there is a coil-spring *z* about bar *w* or *w'*, on which the arm is mounted, one end of said spring being attached to the arm and the other to the said bar. This construction, which is a common one, is sufficiently well illustrated in Fig. 5.

The apparatus is operated in the manner now to be described. The rocker B is supposed to be at rest, as in Fig. 1, and the attendant in position at A'. The riders—say two couples—ascend the stairs and take their places in the seats C, a couple at each end of the rocker B. If there is a notable difference in the weight of the couples, the attendant must shift the weight-carriage until the rocker is made to balance, and he is then able to lift the locking-arm *k* by means of the rope or cord *o*. The rocker being now free to move, the attendant sets it to rocking by shifting the weight-carriage from side to side of its balancing position. When he wishes it to stop, he brings the weight-carriage to the balancing position and lets down the locking-arm *k*, which as the movement slows down catches and locks the rocker fast.

The attendant may have an ordinary indicator on the frame adapted to play over a graduated arc on the rocker or some other known device to indicate to him when the rocker is level, but this can be applied by any one or may be omitted.

In lieu of shifting the weight for setting and keeping the rocker in motion the attendant may do this with the aid of other means—as, for example, such as is represented best in Fig. 3. This consists of a large sprocket-wheel *a'* on the bar *b'*, a smaller sprocket-wheel *a''* on a shaft *a'''* in the frame A', and a chain *a''''*, coupling the two wheels. On the shaft *a'''* is a hand-wheel *a'''''*, by which the attendant can set the rocker in motion. Sprocket-wheels and a connecting-chain are

preferred to bevel-gears and shafting for this purpose, for the reason that the trunnions *b* of the rocker *B* are made to roll to and fro in their bearings *a*, which has the effect to shift the bar *b*<sup>2</sup> a little laterally, but not to an extent sufficient to materially affect the sprocket and chain gearing described above.

To prevent the weight-carriage *E* from shifting, the winch barrel or drum *c* may have on it a toothed wheel *c'* and a dog *c*<sup>2</sup> be mounted on the frame in position to engage the teeth of said wheel. This device is best seen in Fig. 6.

It will be understood that while the flexible parts designated by *i* and *t* are here spoken of as ropes, and ropes are preferred, they may be chains or the like as well.

Having thus described my invention, I claim—

1. In a seesaw, the combination with a supporting-frame provided with a platform for the operator, and a rocker pivotally mounted on said frame, said rocker being provided with a track, extending from the pivot in both directions out on the two arms of the rocker, the weight *E*, mounted on said track and adapted to be shifted to either side of the pivot of the rocker, the winch barrel or drum *c*, mounted rotatively in the fixed frame above the pivotal point, the sheaves *e*, *e'* on the rocker-shaft, and *g*, *g'*, mounted rotatively on the rocker, in the positions specified, and the rope *i*, on said winch-barrel and sheaves and attached to said weight, whereby the operator may shift the weight from side to side of the pivot for operating the rocker.

2. In a seesaw, the combination with a supporting-frame *A*, and a fixed cam-plate *n*, having in it a recess *n'* with shoulders as described, of the triangular rocker *B*, pivotally mounted in said frame, and the arm *k*, pivotally hung to the lower or pendent angle of said rocker and provided with a stud *k'*, adapted

to wipe over said cam-plate and to engage the recess therein when the rocker moves slowly, said stud being also adapted to take under and engage a shoulder in the recess *n'* when the rocker is not precisely level, substantially as set forth.

3. In a seesaw, the combination with a fixed supporting-frame, a rocker pivotally mounted therein, a weight mounted on a track extending longitudinally of the rocker from the pivotal point out along each arm thereof, a weight on said track and mechanism for shifting said weight from side to side of the pivotal point, of a cushion device comprising a sheave *p* on the pendent angle of the rocker, a rope over said sheave and secured to springs at its ends, the said springs, and guide-sheaves for said rope, substantially as set forth.

4. In a seesaw, the combination with a supporting-frame and a rocker pivotally mounted on said frame, of means for rocking said rocker on its trunnions or pivots, and a spring-cushion mechanism for cushioning the rocker at the termination of its movements, said cushion mechanism comprising a sheave *p* on the pendent portion of the rocker, two sheaves *q* and *q*<sup>x</sup>, on the frame in substantially the positions shown, two compression-springs *r* and *r*<sup>x</sup>, which abut on a fixed part, two compression-rods, *s* and *s*<sup>x</sup>, which extend through said springs, and a rope *t*, arranged over and about said sheaves and secured at its respective ends to said compression-rods, substantially as and for the purposes set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

HENRY A. HAYDEN.

Witnesses:

HENRY CONNETT,  
PETER A. ROSS.