

WILLIAM FARINI.

Improvement in Projectors.

No. 115,837.

Patented June 13, 1871.

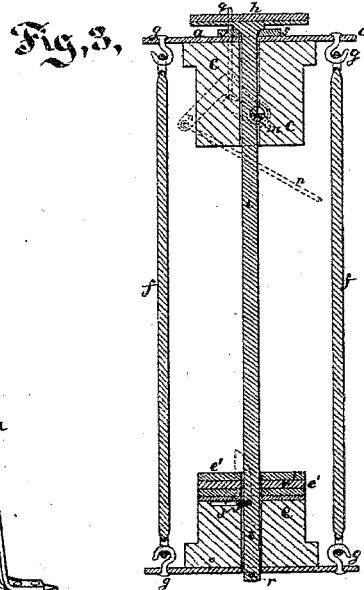
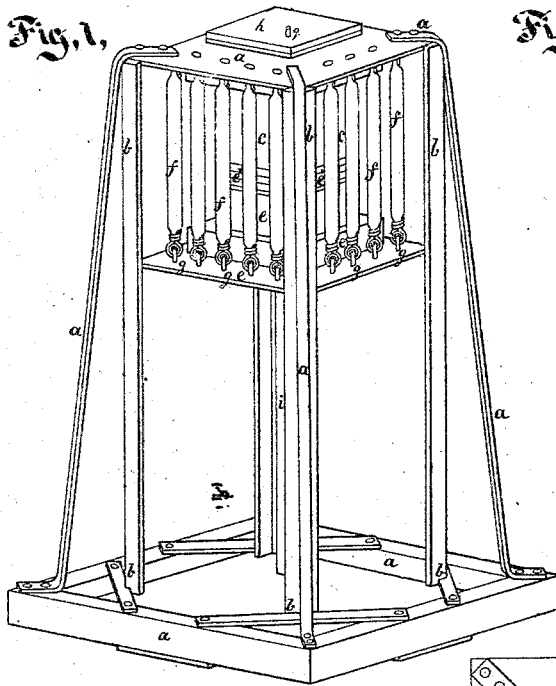


Fig. 4,

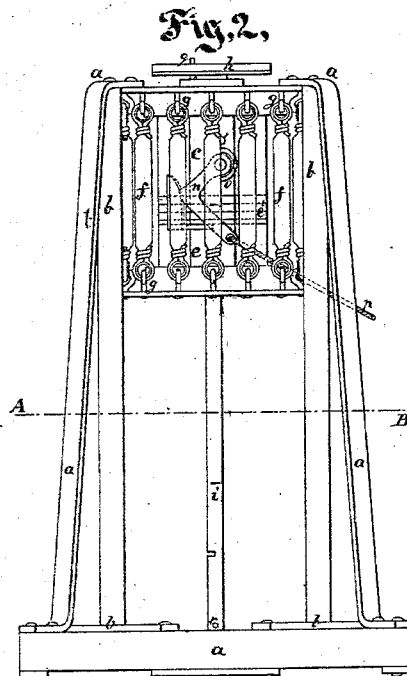
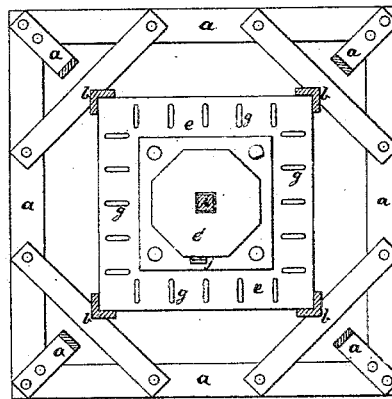


Fig. 5,

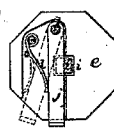


Fig. 7,

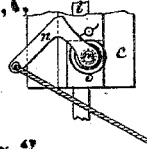


Fig. 6,

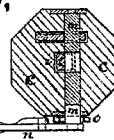
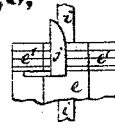


Fig. 8,



Witnesses,  
A. Hoermann.  
C. L. Swings

Inventor,  
William Farini  
By his atty. F. D. Stearns

## UNITED STATES PATENT OFFICE.

WILLIAM FARINI, OF LONDON, ENGLAND.

## IMPROVEMENT IN PROJECTORS.

Specification forming part of Letters Patent No. 115,837, dated June 13, 1871.

*To all whom it may concern:*

Be it known that I, WILLIAM FARINI, now of London, England, have invented certain new and useful Apparatus for Projecting Persons and Articles into or through the Air, of which the following is a specification:

*Nature and Objects of the Invention.*

The main object of my invention is to provide apparatus by which gymnasts and other persons engaged in public and private performances and entertainments may be projected into or through the air to any required height or distance—as an illustration, to project a gymnast, say, thirty feet upward to a trapeze or platform. A minor object is to project articles.

I will proceed to describe what I consider the best means of carrying out the invention by the aid of the accompanying drawing forming a part of the specification. The work may be set inclined so as to project at a corresponding inclination; but I will describe it as set perpendicularly.

The apparatus possesses the following among other distinguishing features: First, the resilience or reaction of distended springs is used as the projecting force. Second, the springs are easily adjusted and released. Third, the projecting-platform, whereon the person or article stands or is placed, which is raised or moved by the springs, is automatically released when at its highest or outward point and immediately thereupon left or caused to fall, it may be, out of sight.

*Description of the Accompanying Drawing.*

Figure 1 is a perspective view of a complete apparatus arranged for projecting a person vertically upward, India-rubber springs being used, and such springs shown supporting the movable stage. Fig. 2 is a side elevation of Fig. 1. Fig. 3 is a vertical section of part of the apparatus, showing the springs distended and the projecting-platform and stem in position ready for release. Fig. 4 is a plan view at the line A B of Fig. 2, the movable stage being lowered. Figs. 5, 6, 7, and 8 are detail views of parts hereafter referred to.

In all these views like letters are marked on and indicate the same parts.

*a* denotes the supporting-frame. This is well

and substantially fitted together, and so constructed that it can be firmly secured to a rigid foundation. For ordinary public entertainments it is preferred to bring the top part just flush with the stage. *b*, guiding-bars, serving also for supporting and tying. These are placed parallel to each other. *c*, thrust-pieces secured to *a*. The under side of *c* may be fitted with rubber or other yielding surface at *d* to prevent shocks. *e*, movable stage, guided by *b*. If desired, *e* may be formed with apertures and *b* passed through them. The upper surface of *e* is fitted with anti-concussion rubber or other washers, marked *e'*. *f*, springs, here shown as above mentioned, of India rubber. Spiral or other springs may be used. *f* are represented connected by hooks *g* to *a* and *e*, but sister clip-hooks or other mechanical equivalents may be used. *h*, projecting-platform, on which the person or article to be projected stands or is placed. *i*, stem, preferably of steel, firmly secured to *h*. There are two notches in *i*, the lower one to receive the detent *j*, (see Fig. 3, and particularly Figs. 5 and 8,) which is free to move on the pin *k*, and is pressed into position by the spring *l*; and the upper one to receive the half-circle trigger-detent *m*. (See Figs. 2, 3, 6, and 7.) *n* is the trigger, and *o* a coiled spring to keep *m* in locking position. *p* is the releasing-cord, and *q* releasing-pressure bar. The manner of fashioning and fitting the several parts will be obvious.

To adjust the apparatus for use—that is, for the purpose of projecting as aforesaid—it is necessary to depress the movable stage *e*, and with it the projecting-platform *h* and stem *i*, into the position shown in Figs. 3 and 4, and allow the detents *j* and *m*, by the action of the springs *l* and *o*, to enter the notches provided for them. The most convenient mode of lowering the movable stage *e* and securing the projecting-platform *h* and stem *i* is to detach the spring *f*, and, after placing *j* and *m* in position, attaching the springs one after the other between *a* and *e*. The springs may be detached from either *a* or *e*. It will be obvious that instead of disconnecting the springs *f* the movable stage *e* may be forced down and the springs thereby put in tension. This, however, is far from convenient in practice. The adjustment having been effected as described, the person

who may desire to be projected takes his or her place on, or the article to be projected is placed on, the platform *h*. An attendant then pulls the cord *p*, or the person depresses the bar *q*, say, by foot, and releases the trigger-detent *m* from *i*, and thus allows *i*, *h*, and *e* to be raised by the resilience or reaction of the springs *f* with great rapidity. The person or object is thereby projected to the required height or position. Just before the movable stage *e* comes into contact with *a* the detent *j* is withdrawn from the stem *i* by coming into contact with the trigger *n* or with any other suitable piece offering sufficient resistance to operate the detent by turning it and the stem *i*, and projecting-platform *h* is thereby left free to fall by its own weight. If desired, one or more springs may be attached to *i* to draw it and *h* more quickly out of sight. The lower end of *i* has a pin, *r*, passed through it to prevent the momentum from throwing it through *a*; and *a* is fitted with a rubber cushion, *s*, to deaden the fall of *h*. The size and number of the springs *f* must be proportioned to the weight to be projected and to the distance to which it is to be thrown. I have found that twenty Hodges' patent India-rubber springs, called "accumulators," of natural sizes, fifteen inches long by half an inch in diameter, when stretched to four feet in length, are sufficient to project eighty pounds twenty-five feet upward vertically or thirty feet at a low angle.

This apparatus enables artists to introduce a novelty in stage performances, inasmuch as the person or article to be projected may be in full view of the audience. The sudden disappearance of the projecting platform *h* and stem

*i* renders the whole proceeding a mystery. A less desirable apparatus may be produced by causing *h* and *i* to be attached to and form one part with *e*. In this case *h* and *i* would not fall until the springs are again distended.

Having now described the nature of my said invention and particularized the same, I would have it understood that many modifications may be made without departing from the leading features of my invention; but

What I claim is—

1. The springs *f*, movable stage *e*, stem *i*, and projecting-platform *h*, arranged, combined, and operating substantially as herein set forth.

2. The trigger-detent *m* and operating means *p*, arranged to serve relatively to the stem *i*, carrying the projecting-platform *h* and forced upward, substantially as herein set forth.

3. The self-acting detent *j*, for allowing the return of the projecting-platform *h* immediately after its rise, as herein specified.

4. The elastic beds *e'* *s*, arranged, as shown, relatively to the projecting-platform *h* and stem *i*, so as to induce a gentle extinguishment of the velocity, as herein specified.

5. The entire machine or apparatus adapted for projecting objects or persons through the air by the means of springs acting on a platform, *h*, which may be flush with a stage or floor, as herein shown and described.

In testimony whereof I, the said WILLIAM FARINI, have hereunto set my hand the 10th day of April, 1871.

WILLIAM FARINI. [L. S.]

Witnesses:

E. T. HUGHES,  
C. W. COLLINS.