



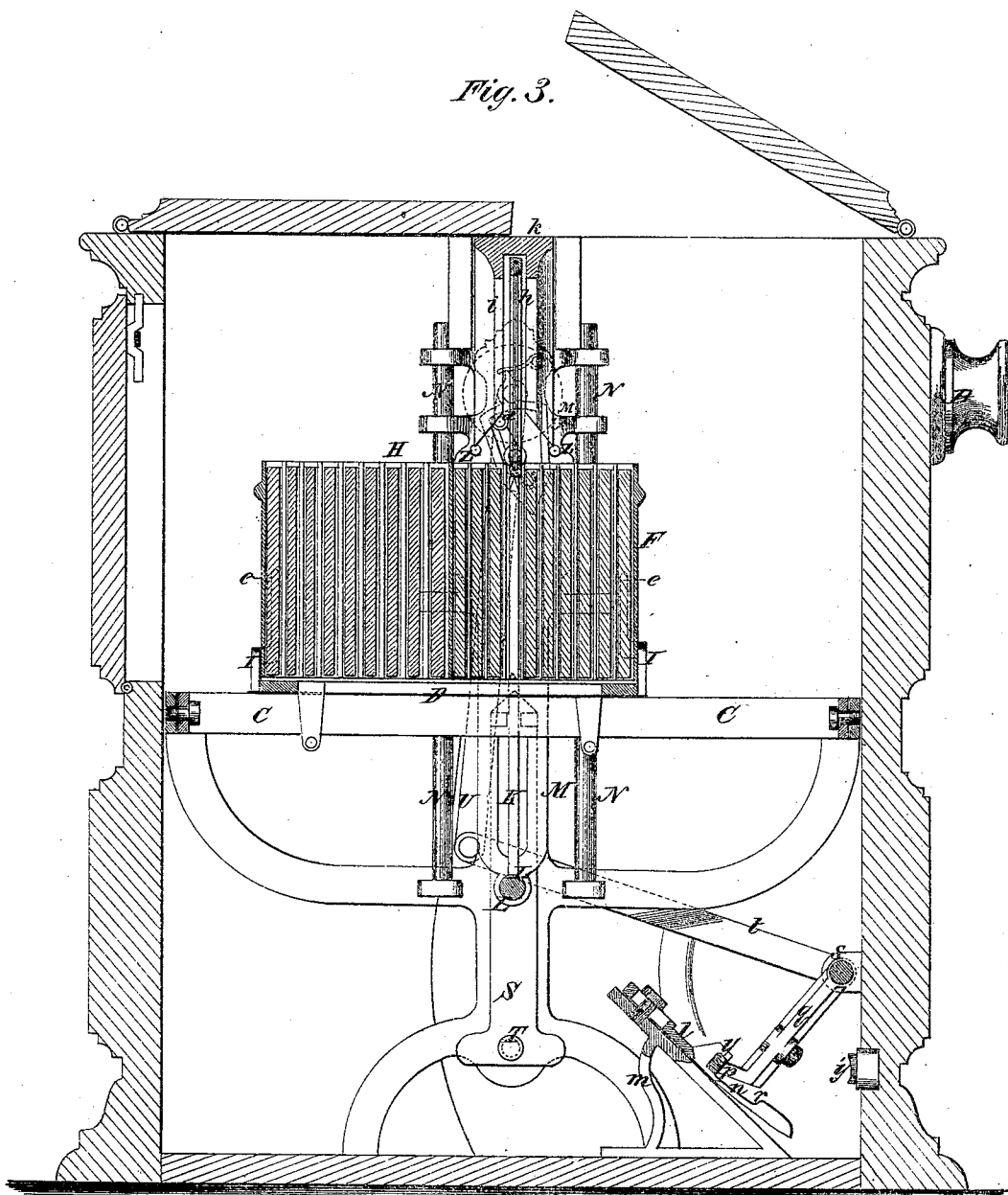
WILLIAM M. KOHL.

Improvement in Box-Stereoscopes.

No. 114,829.

Patented May 16, 1871.

Fig. 3.



Witnesses.

*Justus Dietrich*  
*L. S. Babee*

Inventor.

*William M. Kohl*  
 per *Wm. & Co.*  
 Attorneys.

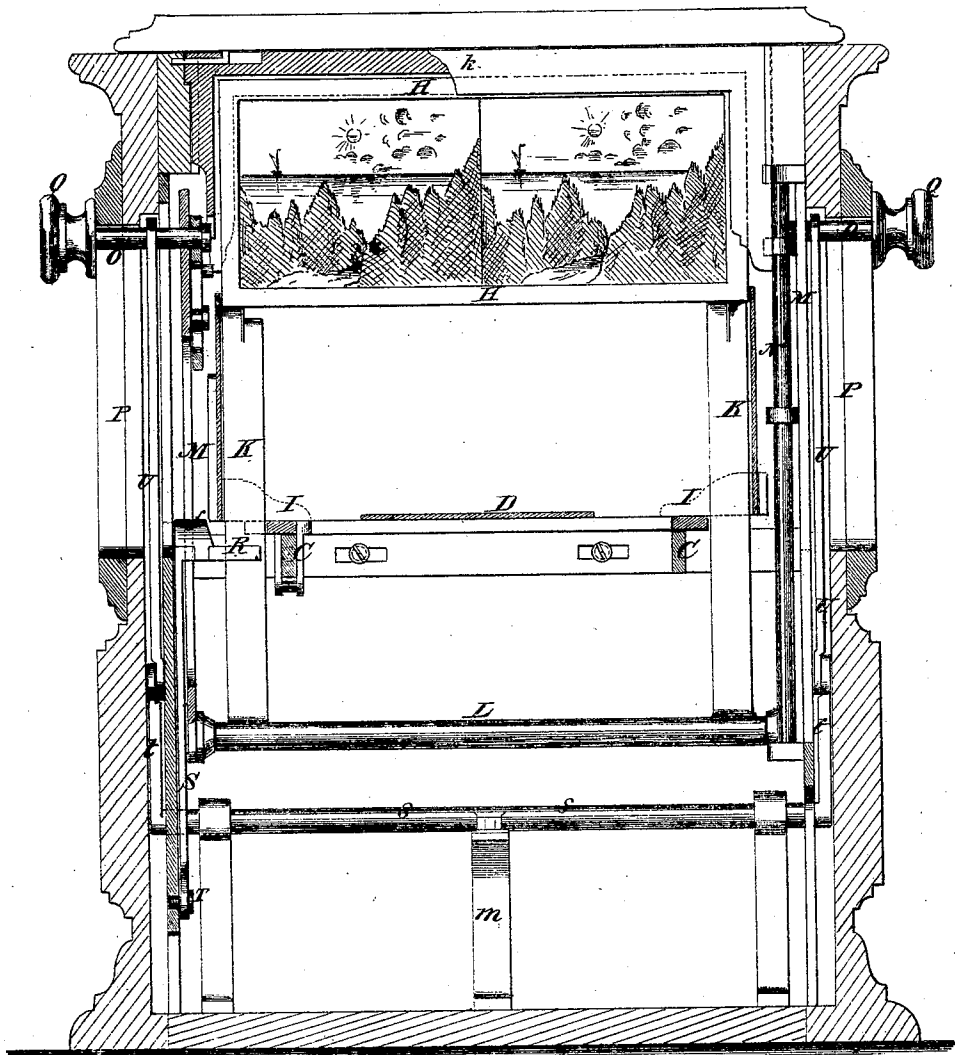
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Fig. 4.



Witnesses.  
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# United States Patent Office.

WILLIAM M. KOHL, OF CINCINNATI, OHIO.

Letters Patent No. 114,829, dated May 16, 1871.

## IMPROVEMENT IN BOX STEREOSCOPES.

The Schedule referred to in these Letters Patent and making part of the same.

### To all whom it may concern:

Be it known that I, WILLIAM M. KOHL, of Cincinnati, in the county of Hamilton and State of Ohio, have invented a new and useful Improvement in Stereoscopes; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawing forming part of this specification.

This invention relates to improvements in stereoscopes, and consists in the application within the main case of a sliding case for holding the views and a selecting and elevating apparatus, so arranged that the pictures will always be raised in the focus of the lenses, the case containing the pictures being moved by the selecting and elevating apparatus so as to take one picture after another, and the said apparatus is arranged to reverse the movement of the picture-case when it has passed completely along the said apparatus either way, all as hereinafter specified.

Figure 1 is a sectional elevation of my improved apparatus taken on the line  $x x$  of fig. 2, and with the sliding picture-case removed;

Figure 2 is a top view, partly sectioned;

Figure 3 is a section on the line  $y y$  of fig. 2; and

Figure 4 is a section on the line  $z z$  of fig. 2.

Similar letters of reference indicate corresponding parts.

A is the main or exterior case, in which the views and the operating apparatus are contained.

B represents the lenses.

C is a frame, mounted in case A below the lenses, for supporting the sliding box holding the views, and has a sliding carriage, D, mounted on it which works back and forth from side to side in the direction of the line of vision.

This carriage is provided with cogs, E, at one side, by which it is moved back and forth, as will be presently described.

F is the case for containing the views. It is made preferably of thin sheet metal, and has grooves G on the inner walls of two opposite sides for holding the views H separate from each other.

This case, containing any approved number of these views, is placed on the carriage D, which has flanges I at the corners to prevent it from slipping off when moved back and forth, and the pictures are raised one at a time by the bars K, mounted on the shaft L, which is mounted in the vertically-sliding plates M, which are arranged to slide on the rods N, and have stud-pins O projecting through the vertical slot P in the sides of the case A, and carrying the knobs or handles Q, by which the motion for the machine is applied by the hands.

The upper ends of the bars K are wedge-shaped for

passing into the spaces between the cogs E, also into the grooves G.

One of these bars is placed in a slotted projection, R, which passes through the slot of plate M and fits it closely from the bottom up to point V, the slot widening after leaving the point V, as shown in fig. 1. When the plate S tends to incline either way it is thrown, by the obliquity of the walls, into a vertical line.

Above the slot in plate M is a cam-plate, V, pivoted at W, with the point hanging downward, the sides of which are beveled in opposite directions alike.

Above the pivot W is a point, X, on which a spring, Y, bears, so as to hold the cam-plate in any position to which it may be adjusted.

Z represents stud-pins projecting from plate M, one on each side of the cam-plate, for limiting its movement on either side.

a is a vibrator, pivoted to plate M at b, within a large opening in the cam-plate. This vibrator carries a stud-pin, d, in the upper end, which is to be struck by one of the bars e of the carriage D near the end of each movement of the latter, and shifted previous to the stopping of the carriage to the opposite side of pivot W, for shifting the point of cam V, the lower end of the vibrator being engaged with the cam so as to move it from side to side in the direction opposite to the movement of stud-pin d.

When the plates M are shoved down by the operator, this cam-plate V, being turned to one side or the other of the vertical line, will strike against the pointed top f (one side or the other, as the case may be) of the bar S, and (the projection R being at that time in the wide part of the slot of plate M) push it and the upper ends of bars K as far to one side of the vertical line as the distance from center to center of the spaces between the cogs E.

When the plates M are raised one of the bars K will be brought up into one of the grooves G at one side of the vertical plane of shaft L, and one of them into the corresponding notch between the cogs E, the plates M being raised again and the one of the oblique walls g of the slot being brought against the projection R and swinging plate S into the vertical line; the bars K also will be caused to swing into the vertical line and move the carriage D and case F along one notch; at the same time the bars K rise up under one of the views and raise it up in front of the lenses, as indicated at h, fig. 3.

For preventing the view from tilting one side or the other, the grooved guides i are arranged in the case A for the reception of the same, and these guides are connected to the cross-bar k and made detachable to admit of readily taking out the case F, and for other purposes.

It is highly desirable to have a simple and efficient means of holding the lifting apparatus, with the views lifted by it, which shall not require any attention for connecting and disconnecting with the said apparatus for taking hold when raised up and letting go when it is required to let the view fall back again.

For this purpose I have provided a strong spring, *l*, at the bottom of the case, on an oblique support, *m*, which spring has a notch, *n*, in which the end *p* of an arm, *q*, engages when the lifting apparatus is at the end of the upward movement, and is held by the lower wall *r* of the notch and the pressure of the spring.

Said arm *q* is mounted on the shaft *s*, which has arms *t*, connected with the stud-pins *O* by the links *u*, by which the shaft is oscillated when the lifting apparatus is raised and the end of arm *q* thrown into the notch. A gentle downward pressure on the knobs *Q* forces the said arm out of the notch and admits of instantly disengaging the lifting apparatus to let the picture fall.

The spring is provided with a cushion at *y*, and another cushion, *y'*, is arranged on the wall of the case for the arm *q* to strike against at the end of either movement to prevent noise and jarring.

By means of this sliding case and raising apparatus the views are always kept in exact focus, they are not required to be handled, and there is much less danger of breaking glass views.

Of course the case containing the views may be moved by other means. For instance, a ratchet and

pawl, the ratchet being on the case or carriage and the pawl being actuated by the sliding plates *M*. or any other moving part.

Or, a rotary shaft, having a pinion gearing with the carriage, may be used, on which may be a ratchet-wheel, arranged to be struck by a pawl or projection on the sliding plates, or one of them, just previous to the arrival at the bottom of the downward movement.

I do not, therefore, limit myself to the arrangement here shown for moving the case *F*.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The application to a stereoscope, in the manner described, of the shifting-cam *V* (on tilting-bar) and projections *e*, (on carriage,) when combined for the purpose set forth.

2. The application to a stereoscope, in the manner described, of lifting-bars *K*, sliding plates *M*, vibrating-arm *q*, and notched spring *r*, when combined for the purpose set forth.

3. The carriage *D*, case *F*, vibrating lift-bars *K*, slotted plates *M*, bar *S*, projection *R*, and cam *V*, when combined and applied to a stereoscope in the manner described.

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Witnesses:

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J. E. CORMANY.