No. 641,947. Patented Jan. 23, 1900.

W. C. FARRAND.

PHOTOGRAPHIC BACKGROUND FRAME.

(Application filed May 20, 1899.)

(No Model.) 2 Sheets—Sheet 1.

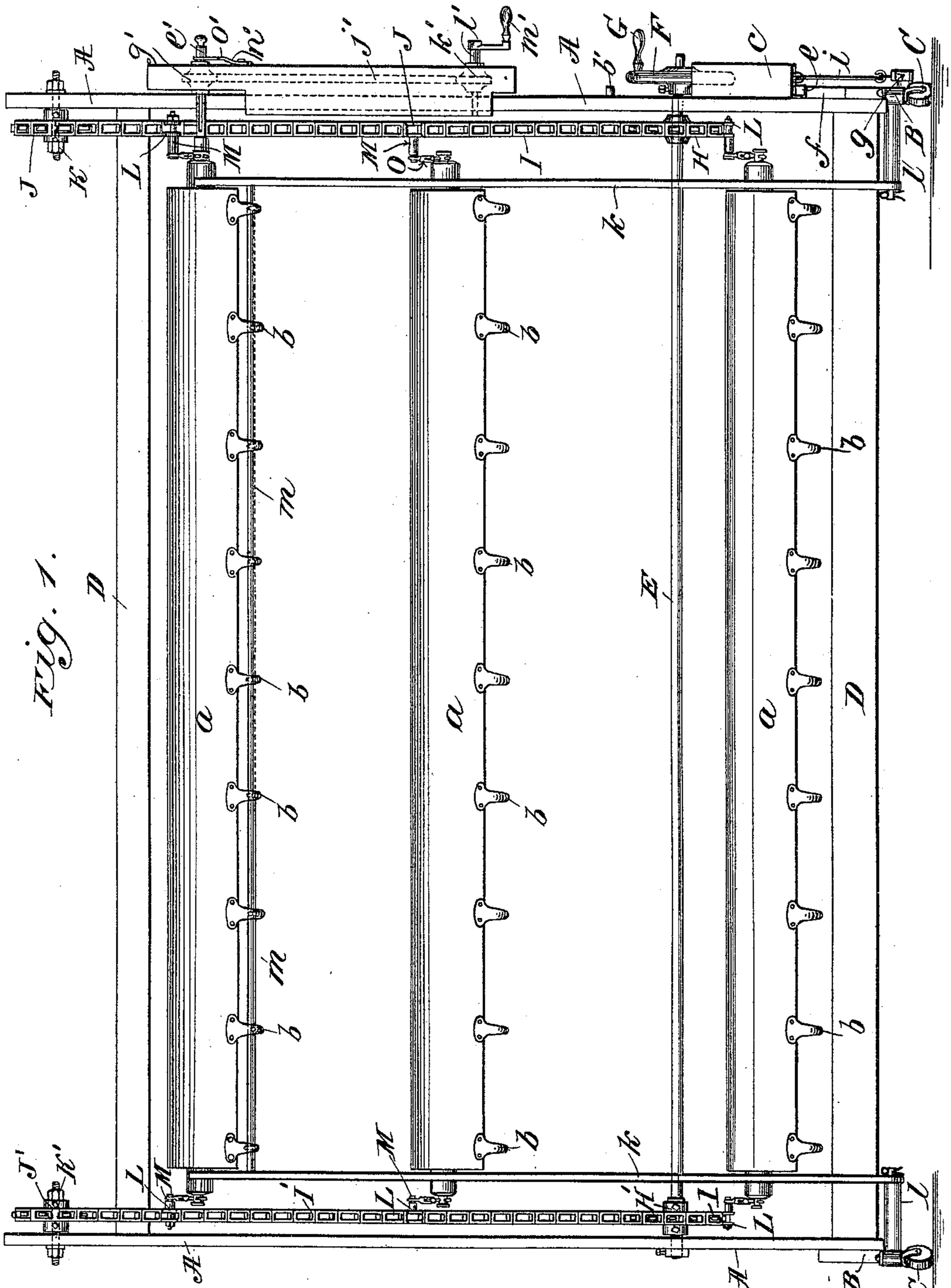

Fig. 1.

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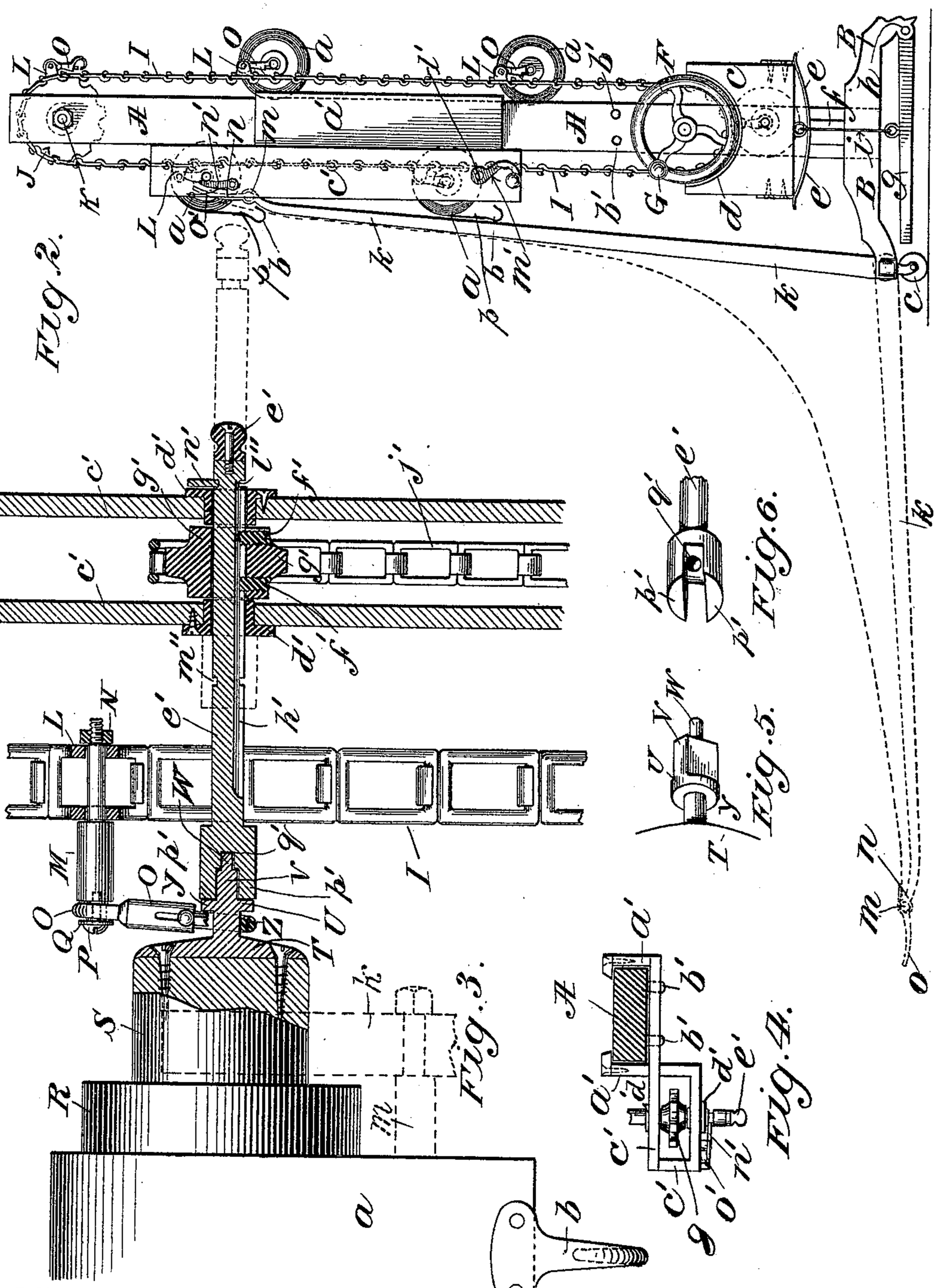

Fig. 2.

Fig. 3.

Fig. 6.

Fig. 5.

Fig. 4.

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UNITED STATES PATENT OFFICE.

WILLIAM C. FARRAND, OF NEW YORK, N. Y., ASSIGNOR TO THE E. & H. T. ANTHONY & COMPANY, OF SAME PLACE.

PHOTOGRAPHIC-BACKGROUND FRAME.

SPECIFICATION forming part of Letters Patent No. 641,947, dated January 23, 1900.

Application filed May 20, 1899. Serial No. 717,543. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM C. FARRAND, a citizen of the United States, and a resident of the borough of Manhattan, city of New York, county and State of New York, have invented a new and useful Improvement in Photographers' Backgrounds, of which the following is a specification, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of the apparatus, all of the backgrounds being rolled up. Fig. 2 is an end elevation, the uppermost background being shown in dotted lines distended or in position for use. Fig. 3 shows an enlarged detail, partly in vertical section, of one end of one of the background-rollers and the mechanism which actuates and controls it. Fig. 4 shows a plan, partly in section, of certain details of the winding and unwinding apparatus. Fig. 5 shows a detail in perspective of one end of the clutch mechanism whereby the background-rollers are connected with the winding-spindle. Fig. 6 is a detail, likewise in perspective, showing the end of the winding-spindle with which the device shown in Fig. 5 coacts.

A A are uprights for the support of the apparatus, which may be the same as usually present in devices of this character.

B B are the feet, provided with casters or rollers C C. I prefer that the rollers should be quite large, so as to move smoothly over the floor.

D D are cross-bars to maintain and give rigidity to the structure. I ordinarily prefer to use diagonal braces in addition to the braces D D or without such braces D D. They are not illustrated for the purpose of simplifying the drawings.

E is a cross-shaft journaled near its ends in the uprights A and having at one end a hand-wheel F, preferably having a handle G, whereby it may be turned.

H H′ are two sprocket-wheels keyed to the shaft E, with which sprocket-chains I and I′ engage, which at their upper ends pass over sprocket-wheels J and J′, mounted upon axes K and K′, set in the upper ends of the uprights A.

L L, &c., are lugs forged upon certain of the links in the sprocket-chains, and they are evenly spaced throughout the length of both of the sprocket-chains. Through these lugs pass studs M, (seen best in Fig. 3,) which are held in place by nuts N, and on the inner ends of these studs there is a shouldered projection adapted to receive the eye of a spring-snap O, and the spring-snaps are confined upon the shouldered ends of the studs by a screw P and washer Q.

The rollers upon which the backgrounds are arranged are best shown in Fig. 3 at R, S being a reduced or shouldered projection therefrom, to which is attached a plate T, having a projecting device U, which I call the "clutch" device. It is made as shown best in Fig. 5—that is to say, it has a flattened forwardly-projecting part V, from which extends a cylindrical finger W—and it is provided with a washer Y. The hook part of the snap O (marked Z, see Fig. 3) engages with this clutch device between the washer Y and the plate T. The two ends of the rollers are or may be constructed and provided with the devices above described.

a a are the backgrounds. They are made of canvas or equivalent material, as usual. One edge is attached in any suitable manner, as by pasting or tacking, to the roller R, and the free edge is preferably provided with a series of hooks *b b*, the hooks being so arranged as to have a rearward presentation.

c is a brake-block adapted to slide vertically on suitable ways prepared for it on the side of one of the uprights A, and it is cut out at its upper side, as shown at *d*, and may be provided with a leather or equivalent friction-producing lining, so that when pressed against the periphery of the hand-wheel F it will act as a brake thereon and prevent that wheel from turning.

e is a leaf-spring (other form of spring may be employed) rigidly supported upon a block *f*, which is fastened to the side of the upright A.

g is a treadle pivoted at *h* to the legs B and connected by a link *i* with the block *c*, so that when the treadle is depressed the friction-block *c* will be drawn downwardly, compressing the spring *e*, and the hand-wheel and sprocket-chains then be free to turn.

k k are two bars pivoted at their lower ends

upon brackets *l*, which project inwardly from the front sides of the legs of the apparatus, and they are connected at their upper ends by a cross-bar *m*, which is rigidly fastened to them. The form of the upper ends of these bars *k* is best shown in Fig. 2—that is to say, a curve is made in them, as at *n*, there being a relatively light extension *o* beyond the curve, and the rod *m* is connected with these upright bars at about the curve. This form is given so that the bars *k* will be offset from the main uprights A a suitable distance to clear the lower rolls of background, as shown best in Fig. 2. These bars *k k*, with the cross-bar *m*, are adapted to be swung upon their pivots into a vertical position substantially parallel with the main uprights A of the apparatus, and also to assume a position, as shown in dotted lines in Fig. 2, practically parallel with the floor, their outer ends resting upon the floor, and they are so wide apart that the edges of the rolls of background are between the two bars *k k*, so that when the parts are in the position shown in Fig. 2 the cross-bar *m* of the pivoted frame *k k* will rest inside of and yet adjacent to the depending edge *p* of the background, the hooks, which, as above stated, have a rearward presentation, being adapted to engage with and hook over the transverse bar *m* when the frame *k k* is swung outwardly, as is clearly shown in Fig. 2. When the frame composed of the pivoted bars *k k* and cross-bar *m* is swung outwardly and the background unwound in a manner to be hereinafter described, the bar *m* will first come in contact with the rear side of the background, and then in its descent it will push the free edge outwardly from the apparatus, thus causing the hooks *b b* to automatically engage with the cross-rod *m* as it reaches the edge of the background and be lowered gradually to the floor as it is unwound. This results in a saving of much time and annoying work on the part of the photographer to project and smooth out the backgrounds upon the floor of the gallery. As is well known, the scenery has frequently to be changed in order to satisfy the whims of the sitters. When the bars *k* are in their upright position, the dimensions of the parts are such that the projecting upper end *o* ordinarily rests against the shoulder shown at S in Fig. 3. This, however, is not essential.

From the description thus far given it will be obvious that the number of roller-supporting devices on the sprocket-chains—to wit, the lugs L and snap connections O—may be such as preferred. I ordinarily have from eight to twelve sets, so that that number of separate rollers carrying backgrounds of different characteristics may be employed. Obviously, however, the number may be such as preferred, and it is not necessary that all of these devices should be supplied with a roller. I frequently have but four or six backgrounds at any one time upon the apparatus, although it may be adapted to carry a dozen or more.

It will also be seen that upon depressing the treadle *g*, thereby releasing the braking action upon the hand-wheel F, and upon turning the same by means of the handle G, the sprocket-chains will be set in motion, carrying the series of background-rollers in endless procession past the top sprocket-wheels, down the back side and under the lower sprocket-wheels, presenting them upon the front of the apparatus, as desired, and at the moment the pressure is removed from the treadle the brake will automatically lock the hand-wheel in its then position, so that any desired background can be in a moment brought to the desired location as high or as low as required. If desired to use a floor-ground as well as the background, upon lifting the desired roller to the proper height the pivoted frame *k k m* will in a very simple, expeditious, and convenient manner project the background forwardly, so that a portion of it rests upon the floor, and the angle of the background relative to a vertical line or, in other words, the sweep of the curve which it describes may be such as preferred, depending upon the degree to which the background selected is unwound.

Referring now to the means whereby the background is unwound, *a'* is a frame or slideway adapted to slide up and down upon the right-hand main upright A. It may slide upwardly as far as desired, but its downward movement is arrested by two stops *b' b'*, which may be pins or equivalent stops attached to the upright A. This slideway carries a box *c'*, provided with journals *d'*, in which is supported what I call the "winding-spindle" *e'*. Upon this spindle is mounted a sprocket-wheel *g'*, provided with two splines *f' f'*, which enter a groove *h'*, made in the winding-spindle *e'*. *j'* is the sprocket-chain, which passes over another sprocket-wheel *k'*, mounted upon a shaft *l'*, turned by a crank *m'*. (See Fig. 1.)

The winding-spindle *e'* has free movement longitudinally through the journals *d' d'* and is provided with two annular recesses *l''* and *m''*, which engage with a spring-latch *n'*, actuated by a spring *o'*, so that when the spindle is pressed inwardly when engaged with the clutch on one of the background-rollers this latch *n'* will hold it securely in that position, and, on the contrary, when the spindle is withdrawn into the position shown in dotted lines in Fig. 3 the latch will then engage with the annular recess *m''*, so that it will be held in its retracted position. The inner end of the winding-spindle is made in the form shown in Fig. 6—that is to say, it is bifurcated—having two lateral prongs *p'* and a hole *q'* at the rear end of them, these parts coinciding substantially with the parts V and W on the clutch at the end of the rollers.

The operation is simple. The unwinding devices are ordinarily in their lowermost position—that is to say, resting upon the stops *b'*. The photographer manipulates the shifting device, as already described, until the

roller containing the desired background is brought adjacent to the winding-spindle. Thereupon that roller is pushed slightly to the left, as shown in Fig. 3, (it will readily yield, because of the free swinging action afforded by the snap-catches O and the non-rigid character of the sprocket-chains I I′,) so that the clutch U is entered into the end of the winding-spindle, which for the purpose of making this engagement is projected to the left, as shown in Fig. 3, the latch n' having been released from the annular recess m''. As soon as this engagement is effected the latch is allowed to enter the annular recess l'', so as to hold the spindle in its then position. Thereupon the vertical location of the roller is adjusted, the unwinding apparatus being elevated with the roller by simply pushing it up by hand, or by exerting sufficient power in turning the hand-wheel F the winding apparatus will be carried bodily upward with the roller. I prefer, however, to assist this movement by a slight lifting action exerted on the slideway a' or upon the box c'. When the roller and the winding devices have attained the desired elevation, then upon turning the crank m' the roller will be wound or unwound, depending upon the direction in which the crank is turned. If a vertical background only is desired, then this crank will be so turned as to unwind the roller until the lower edge of the background rests upon or is near the floor. If a floor-ground is also desired, then the crank m' is turned until the background is unwound, say, a foot or two. Thereupon the bars k k, with the cross-bar m, are swung outwardly away from the machine until, as before stated, the hooks on the lower edge of the background engage with the rod m, and then the unwinding or lowering operation being continued the background, carrying the spreading or smoothing frame with it, will be gradually lowered to the floor. In so doing the background will be carried out smoothly and evenly without wrinkles and without danger of being defaced or cracked, and after the free ends of the bars k k have reached the floor the curve of the floor-ground and the background may be made such as desired by additionally lowering or slackening the background. After the exposure has been made the apparatus may be quickly returned to its original position by turning the crank m' in a reverse direction, which will wind up the background, at the same time lifting the frame k k and cross-bar m. When it has nearly attained its vertical position, it may be by hand tipped backwardly into the position shown in Fig. 2, and then by slightly unwinding the background again the hooks will disengage from the cross-bar m, when the winding-up operation may be completed. If the background selected is not acceptable either to the photographer or to the sitter, it is a moment's work only to disengage the winding apparatus from the roller and to again operate the shifting apparatus until the desired background is brought into position.

It will be obvious to those who are familiar with this art that many modifications may be made in practically every part of my apparatus without departing from the essentials thereof. I therefore do not limit myself to the details of construction shown and described. It will also be apparent that the pivoted frame k k and m for manipulating the floor-ground need not be used, it being, however, a very desirable and convenient adjunct to the apparatus, adapting it to gallery-work generally and avoiding much inconvenience, labor, and time for the photographer, and also avoiding injury to the backgrounds. Under my invention the necessity for taking out rolls and putting them in a rack, as heretofore, is avoided. The liability to injure the background and the annoyance of having to smooth it out when employed as a floor-ground are also avoided. Any desired vertical adjustment of the parts may be in a moment conveniently attained. Owing to the employment of spring-snaps or equivalent devices as a means of confining the rolls of background to the main sprocket-chains, there is no possibility of their escaping from proper confinement during the rolling of the apparatus about the gallery-floor, so that the falling of backgrounds, which is frequent in other apparatus, is entirely obviated. Also during the rolling-up operation, when the floor-ground extender or frame k k m is not employed, it may be more effectively done than by previous apparatus known to me, because the operator stands in such position that he can with his left hand easily pull out the edge of the background to smooth wrinkles therein while turning the crank m' with the right hand.

The advantages of the floor-ground extender have been already fully pointed out and the fact that the engagement and disengagement of the hooks with the cross-bar m is automatic and that during the winding-up operation of the floor-ground the weight of the frame (bars k k and cross-bar m) stretches the material, so that wrinkles are not apt to occur.

Having described my invention, I claim—

1. The combination, in a background-frame, of suitably supported and actuated sprocket-chains, background-rollers supported upon said chains, a spring-actuated brake which controls said sprocket mechanism, and means to operate the brake, for the purposes set forth.

2. In a background-frame the combination of suitably supported and actuated sprocket-chains, lugs on the chains for the support of rollers, backgrounds on the rollers, a frame pivoted to the background-frame proper, adapted to engage with the free edge of the background and to project the same forwardly and horizontally, and means to engage the edge of the background with said pivoted frame, for the purposes set forth.

3. The combination, in a background-frame, of suitably supported and actuated rollers, backgrounds on the rollers, a frame pivoted to the frame proper and adapted to project the background forwardly and horizontally, and hooks upon the free edge of the background adapted to engage with said pivoted frame, for the purposes set forth.

4. The combination, in a background-frame, of suitably supported and actuated sprocket-chains, lugs on the chains, rollers supported by said lugs, backgrounds on the rollers, a spindle adapted to engage with the axes of the rollers, a vertically-adjustable support for the spindle, and means to rotate said spindle, for the purposes set forth.

5. The combination, in a background-frame, of suitably supported and actuated sprocket-chains, lugs on the chains, rollers supported by said lugs, backgrounds on the rollers, a spindle adapted to engage with the axes of the rollers, a vertically-adjustable support for the spindle, means to rotate said spindle, and a frame pivoted to the main frame of the apparatus, adapted to engage with the free edge of the backgrounds and to project the same forwardly and horizontally, for the purposes set forth.

6. The combination, in a background-frame, of a series of rollers supported at opposite sides of the machine upon movable endless supporting devices, backgrounds upon said rollers, means to move said devices, means to hold them in any desired position, a spindle detachably attachable to the axes of the rollers, means to rotate said spindle, and a vertically-adjustable support for said spindle and the means whereby it is rotated, for the purposes set forth.

7. The combination, in a background-frame, of suitably supported and actuated sprocket-chains, lugs on the chains, pendent hooks loosely engaging with said lugs, rollers supported by said pendent hooks, and backgrounds on the rollers, for the purposes set forth.

8. In a background-frame the combination of laterally-arranged sprocket-chains, a hand-wheel for actuating the chains, a spring-controlled brake which engages with the hand-wheel, pendent hooks attached loosely to the sprocket-chain, background-rollers supported upon said hooks, a spindle detachably attachable to the axes of said rollers, means to rotate said spindle, and means to lock the spindle in position when engaged with the axis of each roller, for the purposes set forth.

Signed at New York, in the county of New York and State of New York, this 17th day of May, A. D. 1899.

WILLIAM C. FARRAND.

Witnesses:

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