(No Model.) 3 Sheets—Sheet 1.

E. KIPPER & E. W. PERRY, Jr.

MAGAZINE PLATE HOLDER FOR PHOTOGRAPHIC APPARATUS.

No. 458,907. Patented Sept. 1, 1891.

Fig. 1.

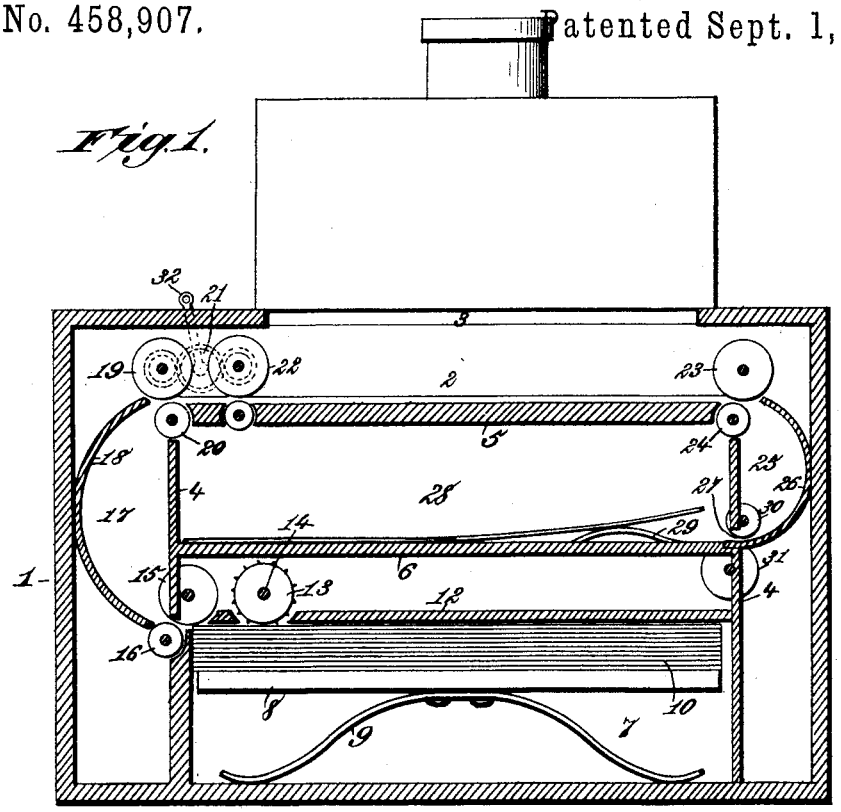
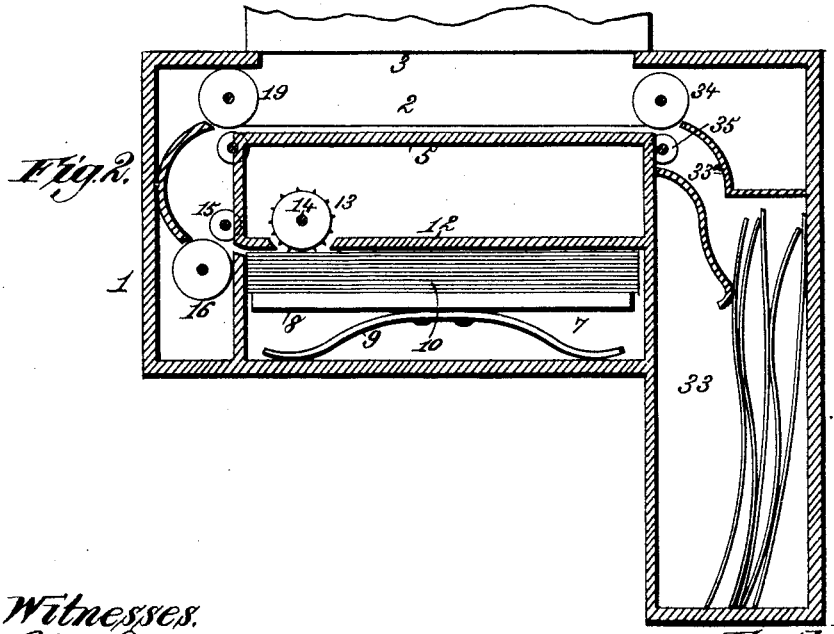


Fig. 2.



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(No Model.) 3 Sheets—Sheet 2.

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Fig. 3.

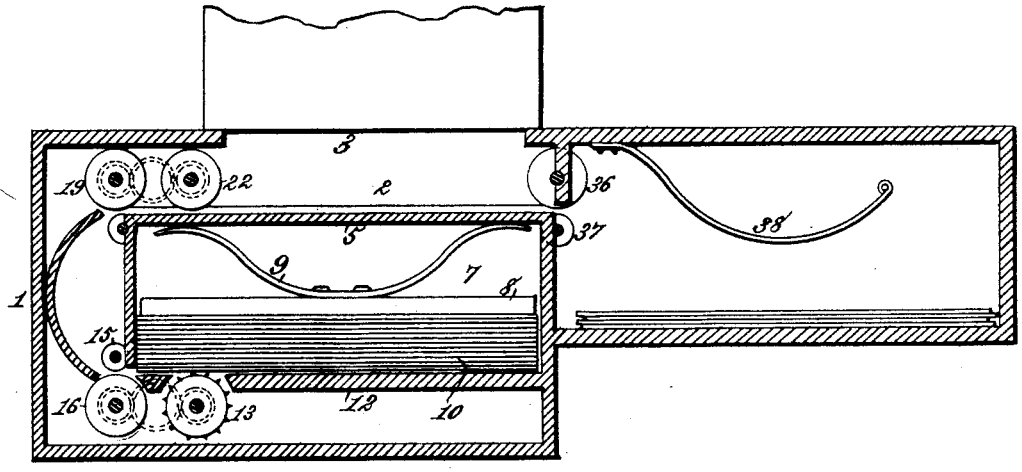
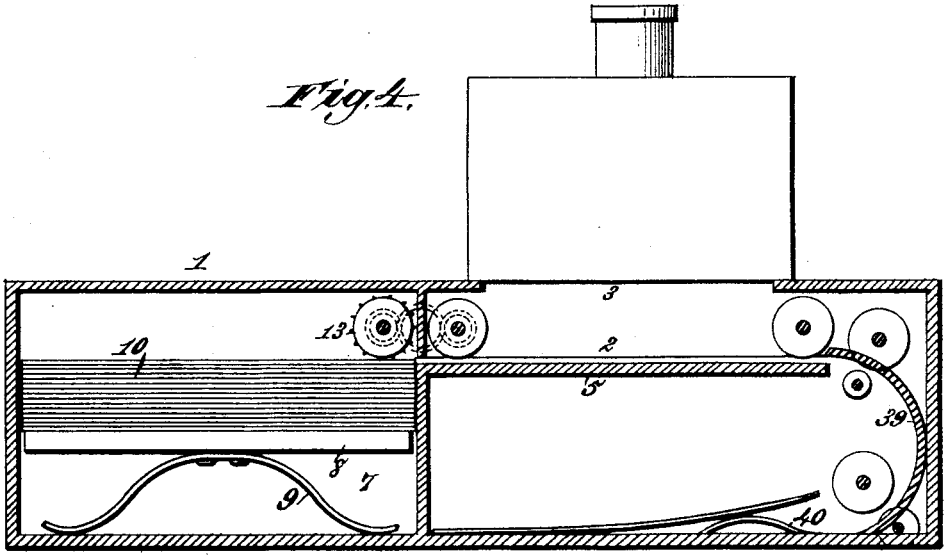


Fig. 4.



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(No Model.) 3 Sheets—Sheet 3.

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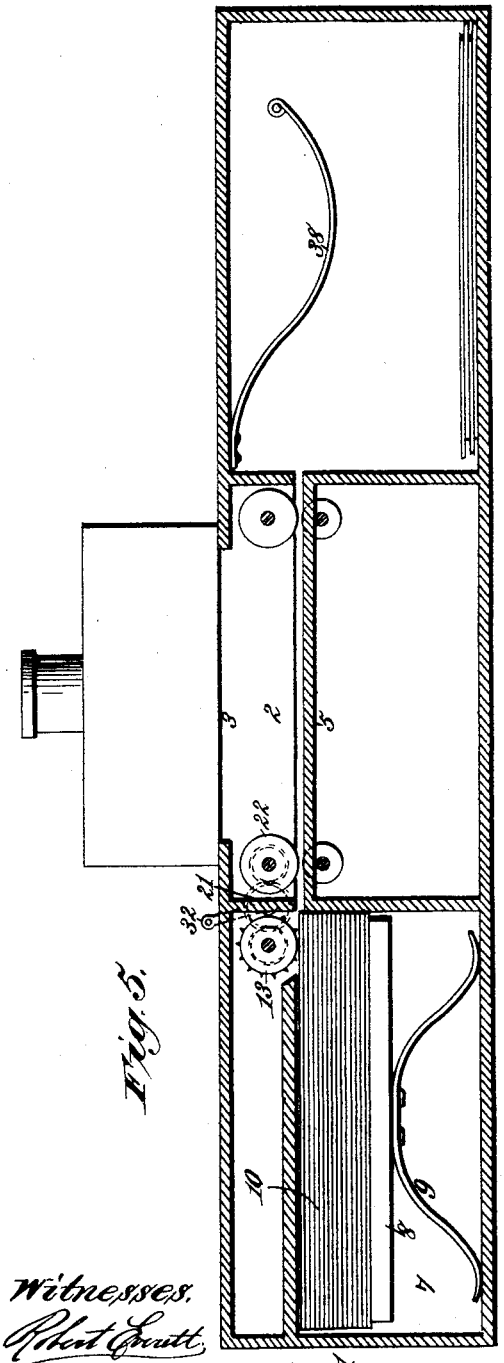

Fig. 5.

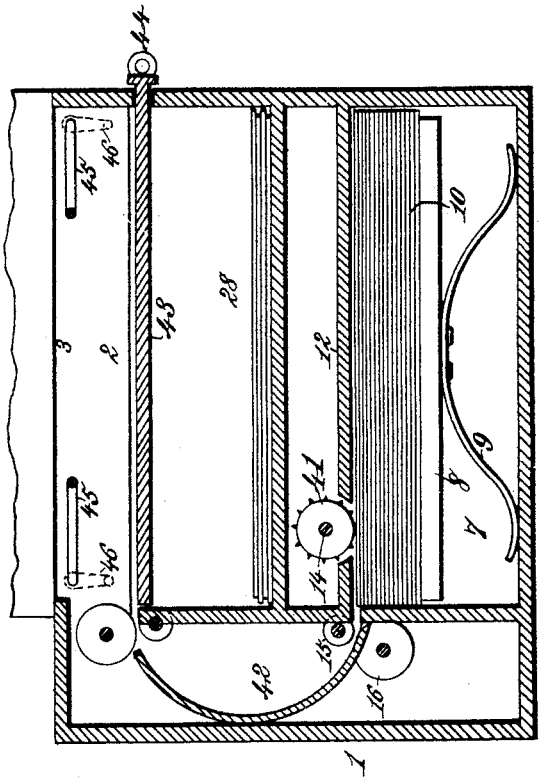

Fig. 6.

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UNITED STATES PATENT OFFICE.

EMIL KIPPER, OF ADAMS, MASSACHUSETTS, AND ENOCH WOOD PERRY, JR., OF NEW YORK, N. Y.

MAGAZINE PLATE-HOLDER FOR PHOTOGRAPHIC APPARATUS.

SPECIFICATION forming part of Letters Patent No. 458,907, dated September 1, 1891.

Application filed April 28, 1890. Serial No. 349,752. (No model.)

To all whom it may concern:

Be it known that we, EMIL KIPPER, a citizen of Germany, but having declared my intention of becoming a citizen of the United States, residing at Adams, in the county of Berkshire and State of Massachusetts, and ENOCH WOOD PERRY, Jr., a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented new and useful Improvements in Magazine Plate-Holders for Photographic Apparatus, of which the following is a specification.

Our invention relates to magazine plate-holders for photographic apparatus, and the purpose thereof is to provide a simple construction by which a stack of sensitized plates may be exposed successively without the necessity of applying non-actinic backings or envelopes thereto.

The invention in this application is an improvement upon that shown in an application filed of even date herewith, and to enable those skilled in the art to practice said invention we will describe the same in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a horizontal section of the camera-box. Fig. 2 is a similar section showing a modified form. Figs. 3 and 4 are horizontal sections showing further modifications. Fig. 5 is a horizontal section showing an arrangement of three separate chambers—one for stacking, one for exposing, and one for storage of the exposed plates—all arranged in substantially the same line. Fig. 6 is a horizontal section showing a modification of the apparatus shown in Fig. 1.

In the said drawings, the reference-numeral 1 denotes the camera-box, in rear of which is a casing or chamber 2, having an opening 3 for exposure. Within this chamber 2 is formed a secondary casing 4, having a wall 5 parallel with the wall in which the opening 3 is formed and at a little distance in rear of said opening. In rear of the wall or platform 5 is arranged a parallel partition 6, forming a stacking-chamber 7, within which is arranged a feeding-plate 8, impelled by one or more springs 9 or by any other suitable device. In front of this feed-plate 8 a series of sensitized films or plates 10 are stacked, and these plates are pressed by the feed-plate against a rigid partition or separating-plate 12.

At one end of the partition 12 we form openings, in one of which is arranged a wheel 13, having points or teeth which engage the marginal portions of the film which is adjacent to the partition 12, these wheels being duplicated at each end of a vertical shaft 14, in order that they may act upon the parallel margins of the film. In the other opening we arrange a continuous feed-roll 15, of rubber or other suitable material, between which and a smaller roll 16 the film passes as it is withdrawn from the stacking-chamber. The shafts of the wheel 13 and roll 15 are geared together to revolve at equal speeds, so that the film is grasped between the rubber rolls 15 and 16 as it emerges through a narrow slot in the wall and passes into an intermediate chamber 17. The end wall of this chamber is formed of a concave partition 18, by which it is guided and directed upward and delivered to two feed-rolls 19 and 20, the former being geared by an intermediate 21 to a second and similar roll 22, which may be dispensed with, both lying just above the plane of the outer face of the platform 5. The distance between these rolls, or between the roll 22 and a similar roll 23 at the other end of the platform 5, is such that the end of the film will engage or pass between the roll 23 and a smaller feed-roll 24 before its other end is entirely free from the rolls 22 and 20 at the other end of the platform 5. When in this position it is in place for exposure, which may be effected in any suitable manner. After exposure has been made the rolls 23 and 24 are operated, and the exposed flexible film being carried between them is conveyed into a chamber 25, having a curved or concave wall 26, by which it is so bent that its end is directed into a slot 27 in the wall 4, giving admission to a storage-chamber 28 immediately in the rear of platform 5. Upon the wall of this chamber and removed somewhat from the entrance-slot 27 is a spring 29, by which the end of the inserted film is raised to remove it from

the path of the film which follows. Upon opposite sides of the slot 27 are arranged feed-rolls 30 and 31, which carry the exposed film entirely within the storage-chamber 28. We preferably gear the several pairs of rolls together and operate the series of gears by a crank 32 upon the shaft of the intermediate 21, or by a crank or key turning some other wheel, which moves simultaneously all of the geared wheels.

The construction described is susceptible of considerable variation in construction. For example, in Fig. 2 we have shown a storage-chamber 33 arranged at the side of the stacking-chamber. In this case the films are removed from the stacking-chamber 7 in the manner already set forth, and after exposure upon the platform 5 they are fed through a passage 33^a into the storage-chamber by rolls 34 and 35, which are substantial equivalents of the rolls 23 and 24. The inner wall of the passage 33^a is prolonged and curved to hold the ends of the exposed plates out of the path of those subsequently entering. So, also, in Fig. 3 the storage-chamber 7 is arranged laterally, and while the films are drawn from the stacking-chamber in the manner already set forth they are driven from the exposing-platform 5 directly into the storage-chamber by rolls 36 and 37, which are the counterparts of those already shown in Figs. 1 and 2. A spring 38 is arranged in the lateral chamber to hold the films down and permit the entrance of others.

In Fig. 4 the modification is somewhat greater, the stacking-chamber being arranged laterally and the films being fed directly therefrom upon the exposing-platform 5, whence after exposure they are fed over a curved partition 39 into a storage-chamber directly behind the said exposing-platform, a spring 40 being employed in said chamber for the same purposes already stated.

In Fig. 5 we have provided for the direct feed of the films, whereby their bending is avoided. In this modification the stacking-box 7 is arranged upon the side and the storage-chamber upon the other side of the exposing-chamber. The films are withdrawn from the first, exposed, and then fed to the storage-chamber by means so similar to those already set forth that no further description thereof is necessary. In this form glass plates may be used as well as films.

Finally, in Fig. 6 we show an apparatus in which the stacking-box 7 is in the extreme rear, the films being taken therefrom by a wheel 41, similar to the wheel 13, and being carried through a lateral intermediate chamber 42 in substantially the manner shown in Fig. 1. After they are extended upon the platform 43 they are thrown into the storage-chamber 28 by withdrawing the platform 43, which is in this modified construction a slide, one end of which projects and has a handle 44.

In order to throw the exposed film into the storage-chamber, bails 45 are pivoted in front of the platform 43, which are turned by cranks 46, operated from the exterior.

We do not herein broadly claim a rotary transferring device which impinges upon the surface of a sensitive film or plate to move the same from one compartment to another, as such constitutes the subject-matter of an application filed by E. W. Perry, Jr., February 20, 1890, Serial No. 341,102.

What we claim is—

1. In a photographic apparatus, the combination, with a camera-box, of a stacking-chamber for the sensitized films, a storage-chamber for the exposed films, an exposing-chamber, means for transferring said films from the stacking-chamber to the exposing-chamber, and mechanism for engaging the exposed film and positively moving it from the exposing-chamber into the storage-chamber independent of the action of a succeeding film in its movement into the exposing-chamber, substantially as described.

2. In a photographic apparatus, the combination, with a camera-box, of a casing containing a stacking-chamber, an exposing-chamber, and a storage-chamber, rotary feeding mechanism for transferring the films from the stacking-chamber to the exposing-chamber through a lateral curved passage, and means for removing the exposed films to the storage-chamber through a lateral passage at the end of the camera box or casing, substantially as described.

3. In a photographic apparatus, the combination, with a camera-box, of a stacking-chamber arranged at the extreme rear thereof, an exposing-chamber arranged immediately behind the camera-box, a storage-chamber for the exposed films, said chambers being in communication by opposite lateral passages, means for withdrawing the film from the stacking-chamber, a feed-plate advancing the stack of films within the stacking-chamber, and feed-rolls by which the withdrawn films are fed to the exposing-chamber and removed from the latter to the storage-chamber, substantially as described.

4. In a photographic apparatus, the combination, with a camera-box, of a casing containing a stacking-chamber, an exposing-chamber, and a storage-chamber for the exposed films, said chambers being in communication by opposite lateral passages, means for advancing the films in the stacking-chamber, and means for delivering the films from one chamber to the other, said chambers being arranged in rear of the camera-box, the exposing-chamber being at the front, the stacking-chamber at the rear, and the storage-chamber intermediate of the two, substantially as described.

5. In a photographic apparatus, the combination, with a camera-box, of a stacking-

chamber, an exposing-chamber, a storage-chamber, a wall arranged in the exposing-chamber for supporting the film or plate during exposure, a transferring device for moving a film from the stacking-chamber into the exposing-chamber, and mechanism for engaging and moving the exposed film or plate from the exposing-chamber into the storage-chamber independent of the action of a succeeding film or plate into the exposing-chamber, substantially as described.

In testimony whereof we have affixed our signatures in presence of two witnesses.

EMIL KIPPER.
ENOCH WOOD PERRY, JR.

Witnesses:
C. SEDGWICK,
H. KUNFELD, Jr.