

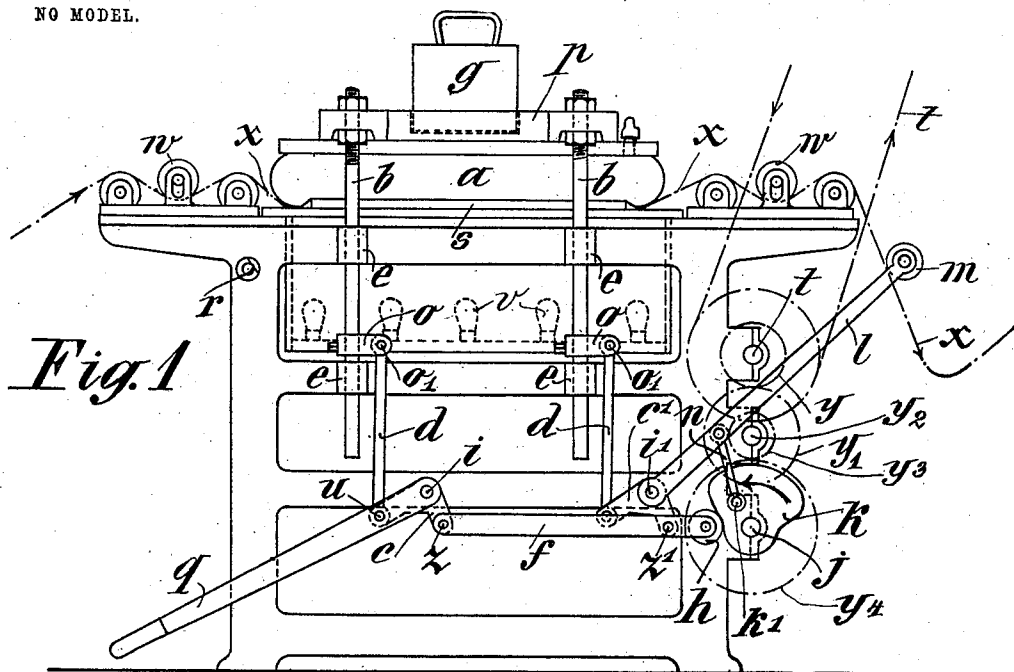
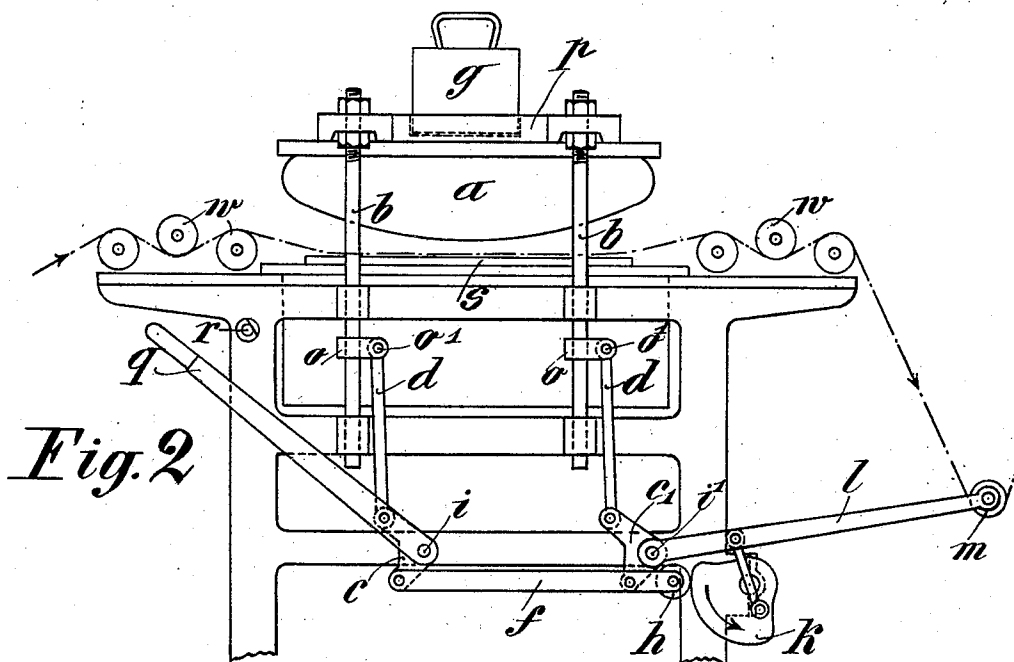
No. 759,469.

PATENTED MAY 10, 1904.

F. RACHEL.
PHOTOGRAPHIC PRINTING APPARATUS.

APPLICATION FILED JAN. 26, 1904.

NO MODEL.



Witnesses:

William Gruel
Hilly Schuly

Inventor:

Friedrich Rachel

UNITED STATES PATENT OFFICE.

FRIEDRICH RACHEL, OF KARLSHORST-BERLIN, GERMANY.

PHOTOGRAPHIC-PRINTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 759,469, dated May 10, 1904.

Application filed January 26, 1904. Serial No. 190,674. (No model.)

To all whom it may concern:

Be it known that I, FRIEDRICH RACHEL, a citizen of Germany, residing at Karlshorst-Berlin, Germany, have invented new and useful Improvements in Photographic-Printing Apparatus, of which the following is a specification.

This invention relates to a photographic-printing apparatus in which the sensitized paper is uniformly pressed against the negative by an air-cushion and is automatically released after the print has been taken.

In the accompanying drawings, Figure 1 is a front elevation of my improved printing apparatus, and Fig. 2 a similar view showing the parts in different position.

The letter *s* represents the negative plate to be reproduced. This plate is placed upon the machine-frame *A* and is periodically exposed to the action of electric-light bulbs *v*, arranged below the same. The sensitized paper, which is made in the form of a long strip and travels over idlers *w*, is pressed against plate *s* by an air-cushion *a*. This cushion depends from a platen *p*, weighted, as at *g*, the weights *g* being removable, so as to regulate the pressure by using different weights.

The platen *p* is supported by a number of lifters *b b*, which are vertically slidable in bearings *e* and are provided with clasps *o*, to which links *d* are pivoted at *o'*. At their lower ends the links *d* engage bell-cranks *c c'*, which are pivoted to frame *A* at *i i'*. Bell-cranks *c c'* are both connected at *z z'* to a rod *f*, that carries at one end a cam-roller *h*. This roller engages a cam *k*, mounted on a shaft *j*, which receives slow rotary motion from a counter-shaft *t* in the following manner: Upon shaft *t*, driven by belt *t'*, is keyed a gear-wheel *y*, meshing into gear-wheel *y'*, fast on shaft *y''*. Gear-wheel *y''*, also fast on shaft *y''*, engages gear *y'*, mounted on cam-shaft *j*. Upon pin *i'* swings a lever *l*, which carries at its free end a roller *m*, engaging paper strip *x*. Lever *l* is oscillated by a link *n*, one end of which is pivoted to lever *l*, while its other end is pivotally connected to a wrist-pin *k'* of cam *k*.

During the printing operation the cam-roller *h* is in engagement with the contracted cam-section, Fig. 1, while after the paper has

been exposed for the predetermined length of time the roller engages the expanded cam-section, Fig. 2. In this way the rotation of cam *k* causes a reciprocating movement of rod *f*. This rod, by bell-cranks *c c'*, links *d* 55 *d*, clasps *o o*, and lifters *b b*, will alternately raise and lower platen *p*, together with cushion *a*. While the cushion is depressed it will hold the paper strip *x* against the plate *s* with a uniform pressure, while when the cushion 60 is raised the paper is free to be fed forward, so that a new section of the same may be brought into juxtaposition with the plate *s*.

The feed-motion of the paper strip *x* is automatically effected in the direction of the arrow by lever *l*, which is oscillated from cam *k* by link *n*, the apparatus being so timed that the paper is fed forward for the length of one picture as soon as the cushion has been raised.

In order to raise the cushion *a* by hand, I 70 provide a hand-lever *q*, which is mounted upon pin *i* and may be connected to bell-crank *c* by bolt *u*. By swinging hand-lever *q* upon its fulcrum the cushion is raised to permit access to plate *s* for repairs or for interchanging the 75 plates, &c. The lever *q* may be held in its raised position by engagement with a support *r*.

By varying the curvature of cam *k* the cushion *a* may be lowered and raised for a different 80 length of time, according to the nature of the negative to be printed.

What I claim is—

1. In a photographic-printing apparatus, the combination of a frame adapted to support 85 a negative with an air-cushion, a rod, means for connecting the rod to the cushion, and a cam for reciprocating the rod, substantially as specified.

2. In a photographic-printing apparatus, 90 the combination of a frame adapted to support a negative with an air-cushion, a platen secured thereto, lifters connected to the platen, links pivotally connected to the lifters, bell-cranks pivoted to the links, a rod connected 95 to the bell-cranks, and a cam for reciprocating the rod, substantially as specified.

3. In a photographic-printing apparatus, the combination of a frame adapted to support 100 a negative with an air-cushion, a rod, means

for connecting the rod to the cushion, a lever adapted to engage the paper strip, means for reciprocating the rod, and means for oscillating the lever, substantially as specified.

- 5 4. In a photographic-printing apparatus, the combination of a frame adapted to support a negative with an air-cushion, a rod, means for connecting the rod to the cushion, a cam

for reciprocating the rod, a hand-lever, and means for connecting said lever to the rod, substantially as specified.

Signed by me this 5th day of January, 1904.

FRIEDRICH RACHEL.

Witnesses:

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HENRY HASPER.