

No. 757,323.

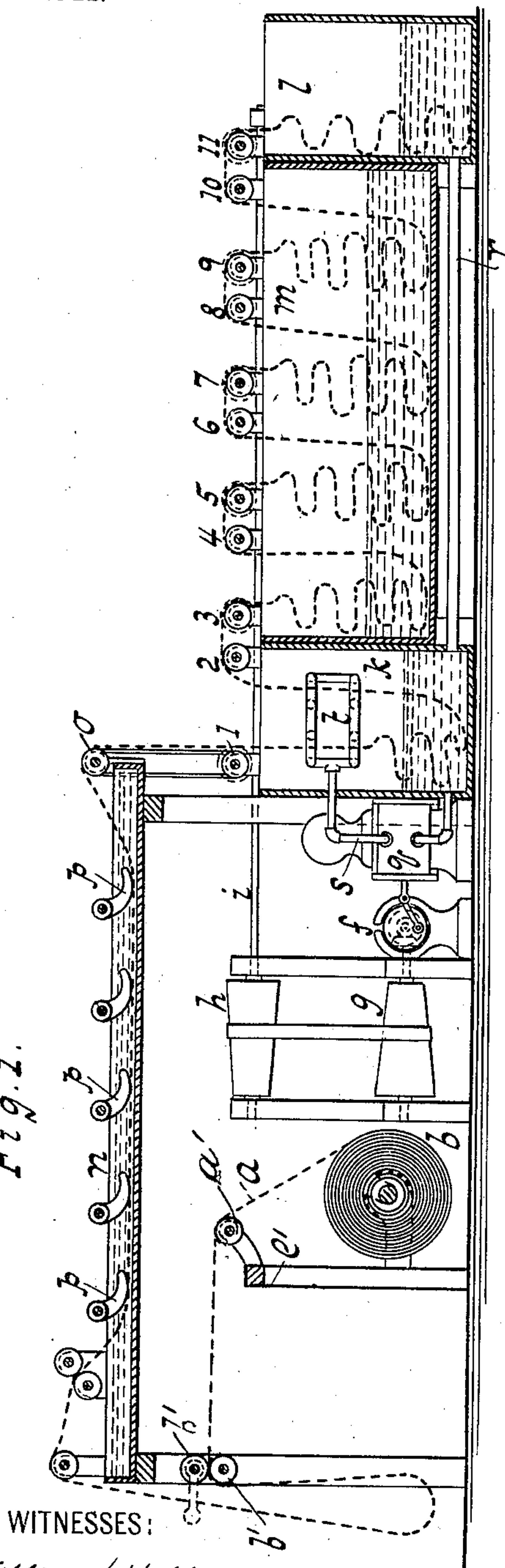
PATENTED APR. 12, 1904.

O. LIENEKAMPF & W. NAUCK.  
PHOTOGRAPHIC DEVELOPING APPARATUS.

APPLICATION FILED SEPT. 24, 1902.

NO MODEL.

Fig. 1.

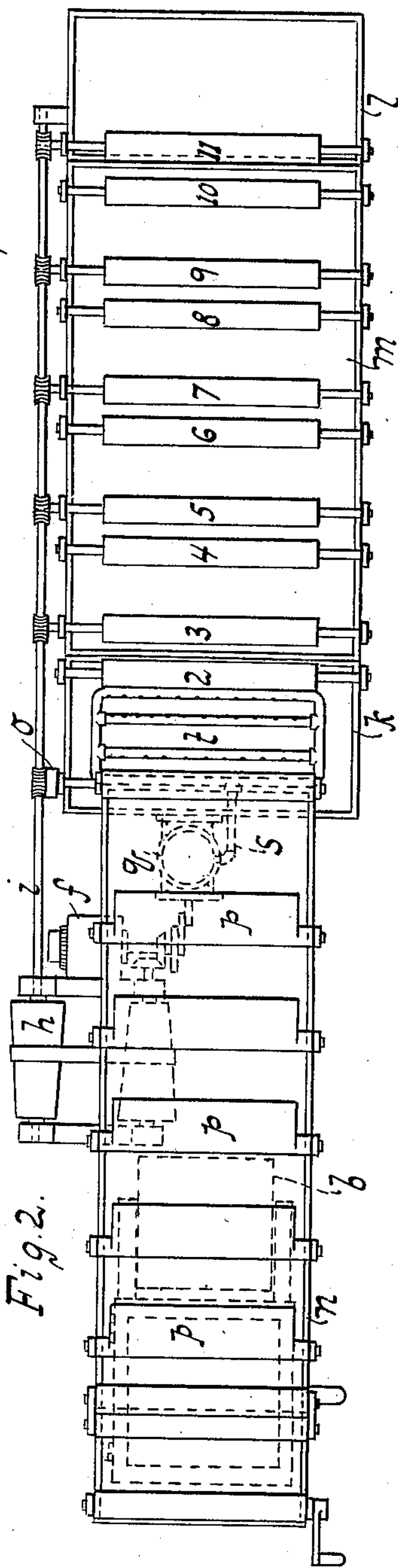


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Fig. 2.



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OTTO LIENEKAMPF AND WILLY NAUCK, OF LEIPZIG, GERMANY.

## PHOTOGRAPHIC DEVELOPING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 757,323, dated April 12, 1904.

Application filed September 24, 1902. Serial No. 124,696. (No model.)

*To all whom it may concern:*

Be it known that we, OTTO LIENEKAMPF and WILLY NAUCK, subjects of the King of Saxony, residing at Leipzig, in the Kingdom of Saxony and Empire of Germany, have invented new and useful Improvements in Photographic Developing Apparatus, of which the following is a specification.

In cases where for rapidly copying photographs the copies are produced on a continuous tape or strip the sensitized tape is fed or wound from a reel or roller and led over an exposing apparatus, then through the developing-bath and a series of other baths. Care should be taken to avoid interruption of the continuous travel of the tape by the stoppage required for exposure; but, on the other hand, the moist tape must not be stretched to such an extent as to cause damage or liability of tearing. This objection is to be avoided by depositing the picture-tape in folded condition in the baths through which it must be led. The tape being free from tension can thus not tear, even if the movement of the carrying-rollers is irregular.

This invention is set forth in the following specification and claim and illustrated in the annexed drawings, in which—

Figure 1 is a side elevation of a device embodying this invention. Fig. 2 is a plan view of Fig. 1.

The photographic copies are taken up by a continuous tape. After exposure the same is led first through a developing-bath *n*, then through a number of baths for cleaning and fixing—as, for example, water-baths *k l*, as also through fixing-bath *m*. To effect the feed, suitable tape-driving rollers and guide-rollers are arranged over the baths. The former according to this invention deposit the picture-tape in folded condition in the baths, after which it can be carried off over a guide-roller.

The tape *a* is shown supplied from a roll *b* and is first passed over the guide-roller *a'* and from thence between the rollers *b' b'*, one

of which is shown with a crank-handle. For subsequent travel of the tape through the baths a power-machine *f* is employed. The same can be electrically or otherwise suitably actuated. For enabling adjustment of the speed of travel or feed of the tape according to the time of exposure the movement of the power or actuating machine is first taken up by a conical pulley transmission *g h* and conveyed to the driving or tape-moving rollers 1 3 5 7, and so on, of the water-reservoirs *k l* and soda-bath *m* by means of worm-shaft *i* or other suitable known appliance. The rollers 2 4 6 and so on serve as guide-rollers. For insuring the movement of the tape through the developing-bath *n* movement from roller 1 can be transmitted to roller *o*.

The actuating mechanism *f*, causing continuous travel of the tape, must have less speed than the tape *a* at its point of unreeling to provide for the intermittent stoppage of the latter. To prevent tensions of the tape which might tear the same in its unequal speed at start and continuance, such tape *a* according to this invention is laid slack or folded in the fluid-receptacles *k l m*.

As regards the developing-bath and the water-discharging arrangement, the following may be noted in the example shown:

The tape *a* is held down in tank *n* of the developing-bath by the scrapers or fingers *p*, which also serve for guiding the developing fluid.

The pump *q*, driven by power mechanism *f*, derives its feed through suction *r* from water-tanks *k l*, and the water is forced by the pump through pressure-conduit *s* out of the sprinkler-tubes *t*, cleansing of the tape being thereby effected.

What we claim as new, and desire to secure by Letters Patent, is—

In an apparatus of the class described, developing, water and fixing baths arranged in succession and each adapted to receive a photographic tape, a plurality of fingers arranged one in advance of the other for holding the



tape down while in the developing-bath, and  
a plurality of horizontally-alined tape-receiv-  
ing rollers arranged in coöperating pairs along  
the top of the water and fixing baths, one  
5 roller of each pair constituting a guide-roller  
and the other a driving-roller, and mechanism  
for actuating the driving-rollers in unison.

In testimony whereof we have hereunto set

our hands in the presence of two subscribing  
witnesses.

OTTO LIENEKAMPF.  
WILLY NAUCK.

Witnesses:

RUDOLPH FRICKE,  
FREDERICK J. DIETZMAN.