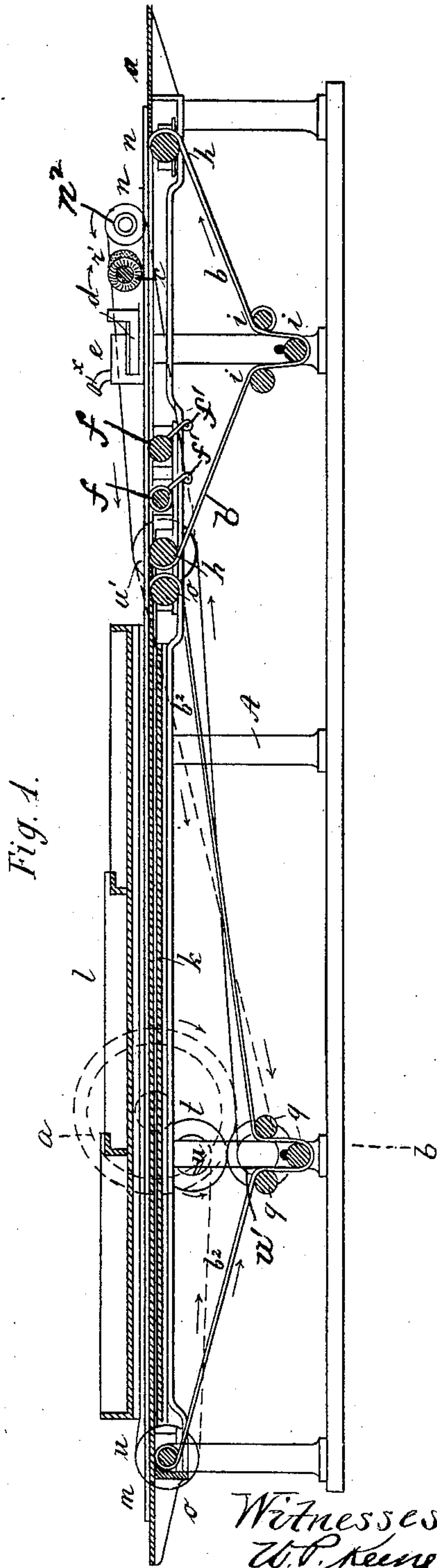


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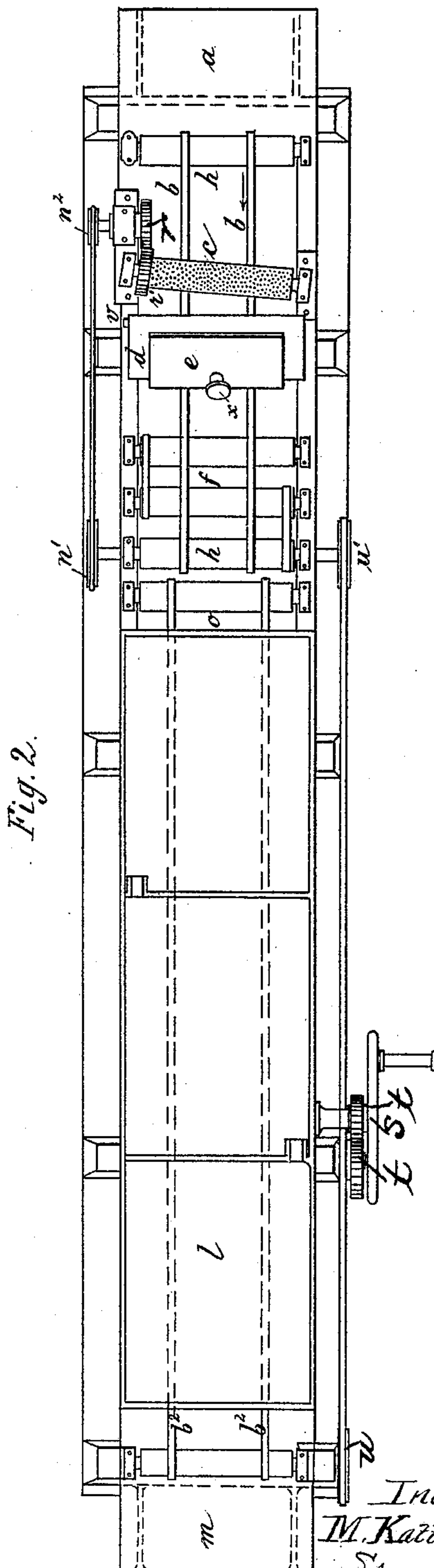
MACHINE FOR CASTING PHOTOGRAPHIC DRY PLATES.

No. 410,898.

Patented Sept. 10, 1889.



Witnesses
W. P. Keene.
James M. Spear



Inventor.
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by Wm. Spear
Att'y.

(No Model.)

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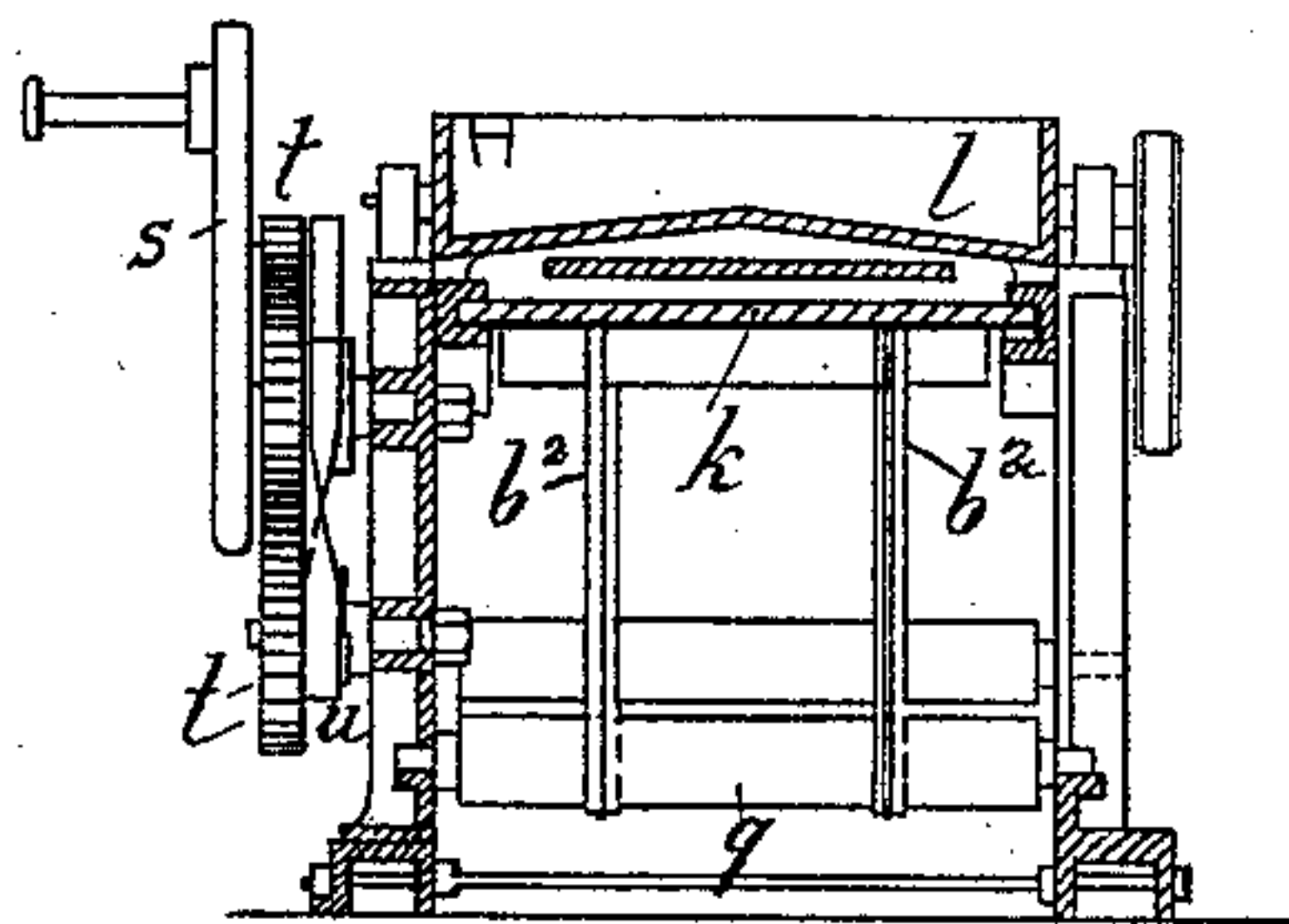
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Fig. 3



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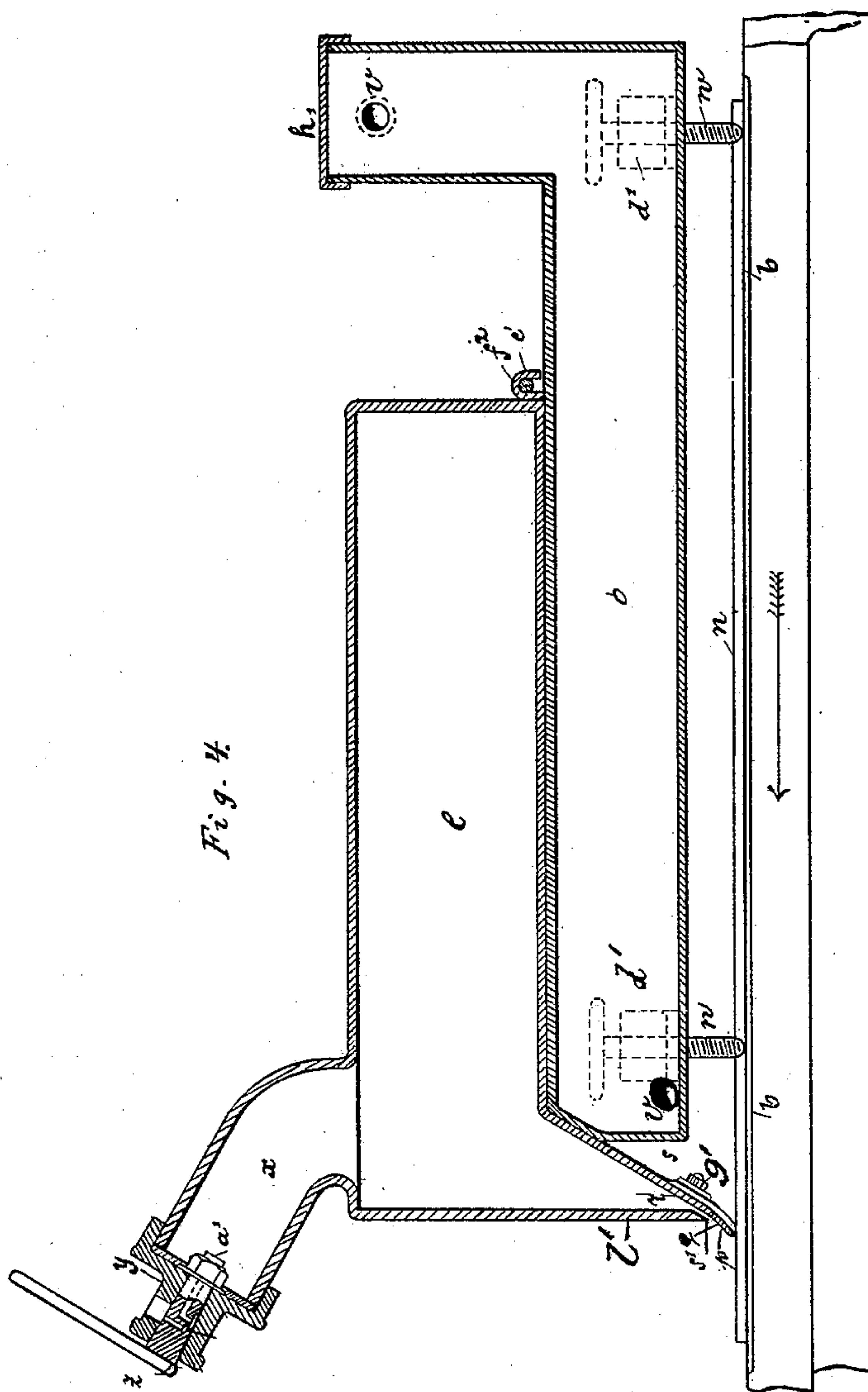
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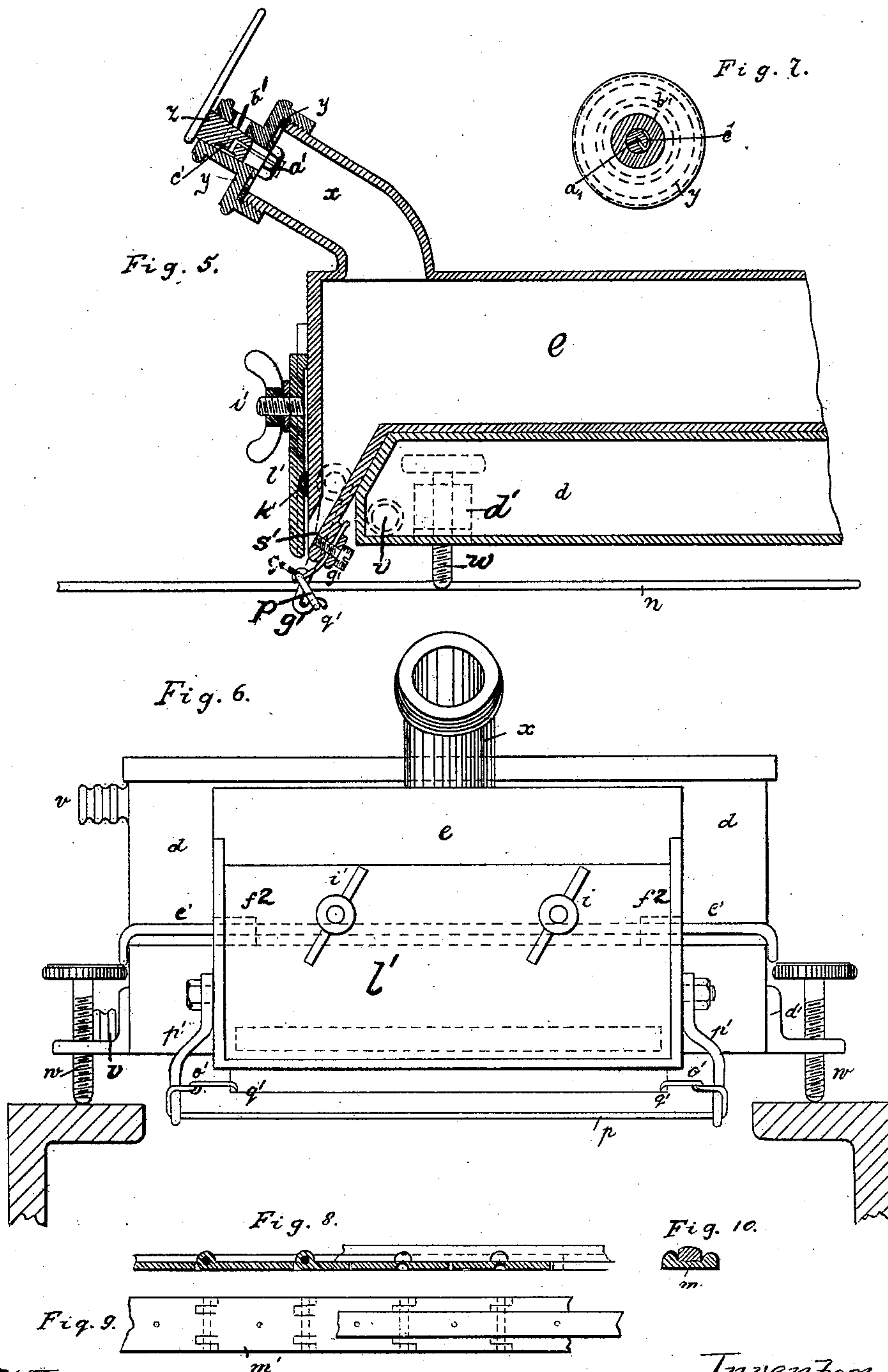
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MACHINE FOR CASTING PHOTOGRAPHIC DRY PLATES.

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UNITED STATES PATENT OFFICE.

MARCUS KATTENTIDT, OF HAMELN, PRUSSIA, GERMANY.

MACHINE FOR CASTING PHOTOGRAPHIC DRY-PLATES.

SPECIFICATION forming part of Letters Patent No. 410,898, dated September 10, 1889.

Application filed April 22, 1889. Serial No. 308,123. (No model.)

To all whom it may concern:

Be it known that I, MARCUS KATTENTIDT, engineer, of Hameln, (on the Weser,) in the Kingdom of Prussia and German Empire, have invented a new and useful Machine for Casting Photographic Dry-Plates, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to a machine by means of which the glass or metal plates are provided with a thin layer of gelatine in continuous succession in order to produce dry-plates for photographic purposes.

In the accompanying drawings this machine is shown in Figure 1 in longitudinal section, in plan in Fig. 2, while Fig. 3 represents a cross-section on line *a b*, Fig. 1, with parts in elevation. Fig. 4 is a longitudinal section through the casting or pouring vessel and the warming-vessel below the same drawn to a larger scale. Fig. 5 is a modification of the outlet arrangement of the casting-vessel drawn to an enlarged scale. Fig. 6 is a front view of same, and Fig. 7 is a cross-section through the air-cock. Fig. 8 represents the chain band in longitudinal section. Fig. 9 is a plan thereof, and Fig. 10 a cross-section.

The necessary parts of the machine for the above-described purpose are mounted on the frame-work *A* in the following manner: A double-band conveyer in two parts runs the whole length of the frame-work *A* of the machine, upon which band the plates *n n* to be covered with gelatine are advanced from one end of the machine to the other.

Referring to Figs. 1 and 2, the first part of the band-conveyer system consists of a double endless chain belt *b b*, running over two rollers *h h*, so that the upper part thereof is on a level with the table *a*, while underneath the said chain belt is guided and kept in tension by means of the rollers *i i i*. The second part of the band-conveyer system consists of a double endless band *b² b²*, which is mounted at the same height as the chain belt *b b* and runs over the upper rollers *o o* and the lower tension and guide rollers *q q q*. The lowest rollers *i* and *q* are mounted loosely in slots in the frame-work and by their weight distend the two band-conveyers *b b* and *b² b²*, respect-

ively, over the rollers, as shown in Figs. 1 and 3.

Movement is communicated to the band-conveyer systems by means of the crank-handle and fly-wheel *s*, toothed wheels *t t t*, and by belt-pulleys *u u* for the second band, and by means of the pulleys *u' u'* and crossed band for the first part of the band-conveyer system. A pulley *n'* is mounted on the opposite end of the shaft of the roller *h*, Fig. 2, on which the upper belt-pulley *u'* is keyed. This pulley *n'*, by means of a cord or strap, communicates motion to a smaller pulley *n²*, which is mounted on a shaft running in suitable bearings on the frame-work of the machine, and having keyed onto its other end a tooth-wheel *r*, which gears with another beveled wheel *r'*. This latter wheel *r'* is keyed onto a shaft running in bearings and having thereon a rotary brush *c* in the form of a roller. The brush *c* is so mounted that the plates *n n*, Fig. 1, laid on the double band *b b* and moved along thereon are brushed very clean before coming under the casting-vessel *e*. Then the properly-regulated outflow of gelatine on the moving glass or metal plates *n n* takes place. As, however, the plates do not always touch each other, and consequently some of the gelatine also finds its way onto their other sides, I mount the rollers *f f* underneath the same and near the casting-vessel in such manner that they are revolved by the plates passing along over them, whereby the gelatine on the under side of said plate is removed and finally scraped off the rollers by the scrapers or doctors *f' f'*. The plates *n n*, continuing to move along the double chain band or belt *b b*, then come onto the second band-conveyer system *b² b²*, and are conveyed by the latter between a lower drying-plate *k* and an upper cooling-vessel *l* until they are completely dried and cooled and are removed from the table at the end of the frame-work *A*.

The drying-plate *k*, which may be made of one piece or several pieces, as desired, rests in the U-shaped cheek-pieces of the frame-work, Fig. 3, and may be kept at the necessary degree of heat either by means of gas-flames or in any other suitable manner.

The cooling-vessel *l* is, as shown in Fig. 1, divided into several compartments in such

manner that the water entering at the farthest overflows therefrom into the second by means of an overflow-opening, and in like manner from the second into the third, from whence it is allowed to run off by a pipe. The cooling-vessel *l* is open above, as shown, and the bottom is made sloping from the middle down to each side, as shown in Fig. 3, or from one side to the other, in order that the steam condensing may not fall down in the form of drops of water on the finished plates *n n*, but may flow off by a gutter at the side.

The casting-vessel *e*, which contains the fluid gelatine, rests on the heating-chamber *d*, and is pivoted thereto by means of the hinge-bolt *e'* and the bent round flaps or lugs *f*². (See Fig. 4.) The heating-chamber *d* is adjusted as to height by means of set-screws *w*, screwed into lugs *d'*, and is provided with water-connections *v v* at the side, for the in and out flow of hot water. (See also Fig. 6.) The casting-vessel *e* is provided at one end with an outlet opening in a downward direction, which forms a narrow slit *s'*, the length of which is somewhat shorter than the breadth of the dry-plates *n n*, the width being either constant, as shown in Fig. 4, or adjustable, as in Fig. 6. The slit *s'* is formed by the width between the plate *l'* and the facing side of the casting-vessel *e*, and is adjusted in a degree by the screw-buttons *i'*, Fig. 6, by which, also, the cord packing *k'* is compressed. A strip *g*, of linen, is fixed by means of a leather strip and screws *g'* along and underneath the slit *s'* and turned round, as shown in Fig. 5. The linen strip, Figs. 5 and 6, is turned round and is kept in tension by means of an elastic band *p* and hooks *o' o'* in such manner that the bent-down under surface of the linen strip *g* bears hard against the plates *n n* as they are passed along underneath, and the gelatine flowing down over the strip *g* is evenly distributed over the whole surface of the plates *n n*.

The casting-vessel *e* is, as shown in Figs. 4, 5, and 6, provided with a curved tubular hopper *x* above the mouth or exit *s'* of the vessel, which hopper serves for the introduction of the gelatine when the said vessel *e* is raised to its upright position on its hinge-bolt *e'*, and by reason of the relative positions of the hopper and exit *s'* the gelatine is prevented from escaping when the vessel is tilted back for filling or for suspending the operation of coating the plates. The upper extension *h'* of the heating-vessel *d* then serves as heater and support to the vertically-placed casting-vessel *e* when having fresh gelatine fed thereto. The casting-vessel *e* may also thus be put out of action by tipping it up to an angle of ninety degrees whenever it is desired to interrupt the flow of the gelatine on the plates *n n*. The hopper *x* has screwed thereon an air-tight cover *y*, provided with an air-cock. The plug *z* of the cock has a way *a'* bored down its center, Figs. 4, 5, and

7, and this central way communicates below with the hopper and above by the several circumferential ways *c' c'* of the plug *z*. When the plug *z* is turned, the circumferential ways *c' c'* are connected by the slot or groove in the housing or body of the cock in such manner that the opening *b'* for the air entering thereby may be increased gradually, and according as more or less gelatine is required to flow out of the casting-vessel *e* so also the air-cock is more or less opened. The endless bands or belts *b b b² b²* are preferably half-round in section, (see Fig. 10,) so that they only touch the plates *n n* laid thereon along one line, in order that the gelatine which may come under the plates shall be prevented from spreading farther, and thereby rendering the plates useless.

The bands or belts *b b b² b²*, being weak, are strengthened by means of specially-constructed chains, the sections *m' m'* of which are made flat in section, Figs. 8, 9, and 10. The flat or lower sides of the bands or belts lie in the middle of these chains, and are fastened thereto by means of sewing, the thread passing through the band and holes in the chains, or any other convenient mode of fastening may be employed.

What I claim, and desire to secure by Letters Patent of the United States, is—

1. In combination, the frame, the conveying-bands, the vessel *e*, containing the mixture, and a brushing-roller *c* in front of said vessel, whereby the plates are cleaned for the reception of the mixture, substantially as described.

2. In combination, the frame, the band-conveyers, the vessel *e*, the rollers *f*, located beneath the bands to operate upon the under side of the plates, and the doctors *f' f'*, operating to scrape the rolls, substantially as described.

3. In combination, the frame, the conveyer-bands, the vessel *e*, and a suitable support therefor, the said vessel having an exit-slit *s'* and being pivotally connected to its support, whereby the escape of the mixture may be prevented by tilting the vessel, substantially as described.

4. In combination, the frame, the conveyer-bands, the vessel *e*, and the heating-chamber *d*, the said vessel *e* being pivotally supported by said heating-chamber, substantially as described.

5. In combination, the frame, the vessel *e*, and a suitable support therefor, said vessel having an exit-slit *s'* and being pivotally connected to its support, and having also an inlet-opening extending upwardly in an inclined direction, substantially as described.

6. In combination, the frame, the vessel *e*, said vessel having an exit-slit *s'* and an air-cock, by which the flow of the mixture may be regulated, substantially as described.

7. In the described apparatus, the vessel having an exit-opening *s'*, the movable piece *l'*, the cord packing, and the screw-buttons, substantially as described.

8. In combination, the frame, the vessel *e*,

and the means for drying the plates, consisting of the warming-plates below the plates and the water-reservoir above the same, substantially as described.

5 9. In combination, the frame, the vessel *e*, the bands, and the cooling-reservoir above the bands, said reservoir having its bottom inclined to the edge, substantially as described.

10 10. In combination, the frame, the conveyer-
bands, the vessel *e*, and the cooling-reservoir,

said reservoir having compartments arranged to allow the water to overflow from one to another, substantially as described.

In witness whereof I have hereunto set my hand in presence of two witnesses.

MARCUS KATTENTIDT.

Witnesses:

WILHELM BINDEWALD,
HERMANN WEISS.