

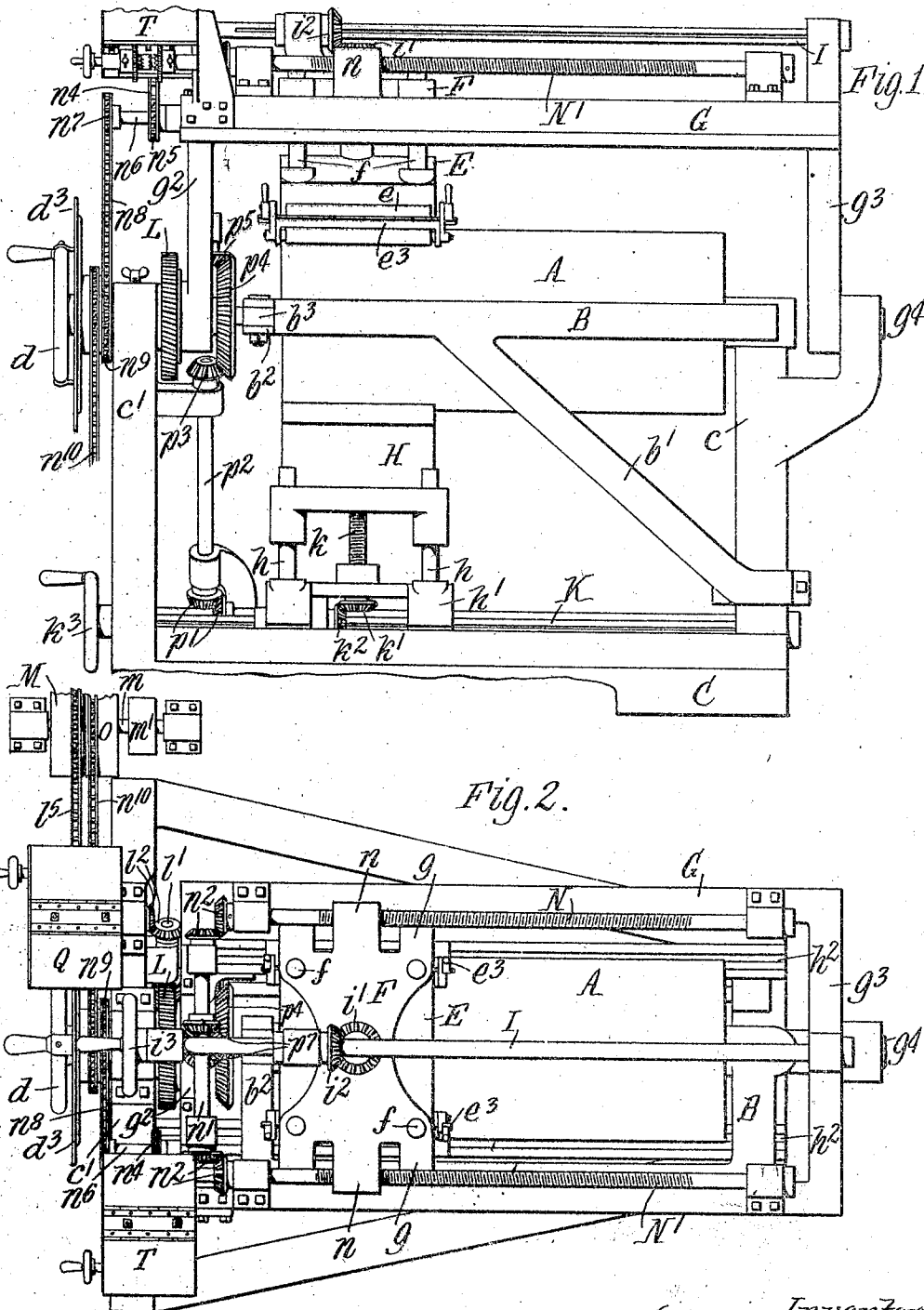
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W. C. HUEBNER.
PHOTOGRAPHIC PRINTING MACHINE.
APPLICATION FILED JAN. 21, 1911.

1,055,749.

Patented Mar. 11, 1913.

7 SHEETS—SHEET 1.



Witnesses:
C. H. Burd.
C. E. Dimond.

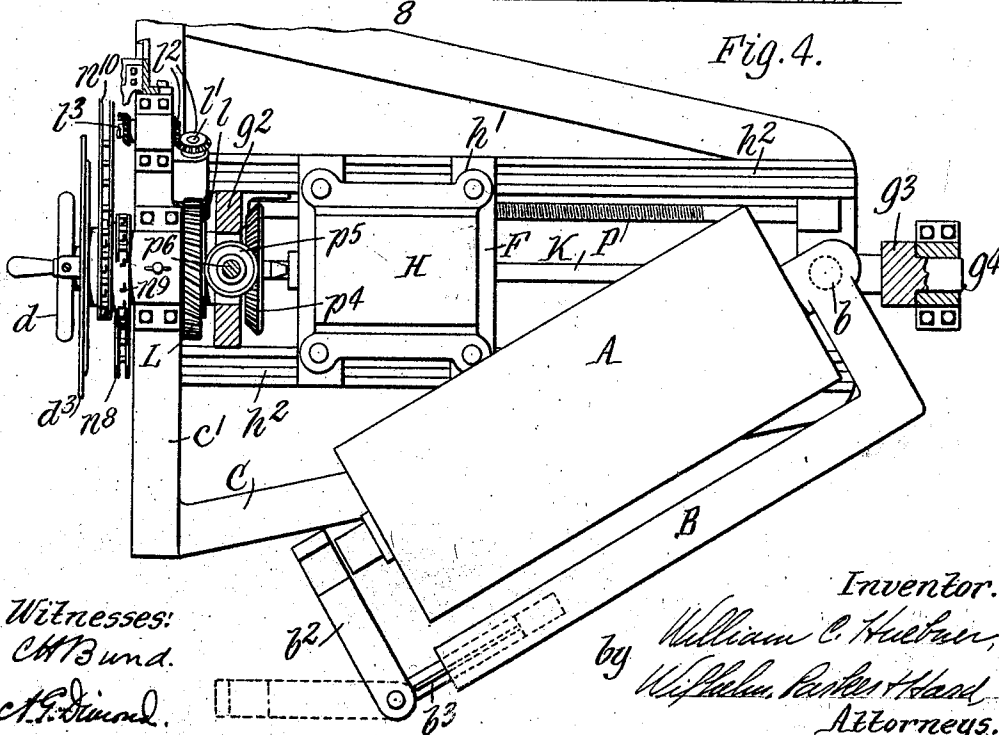
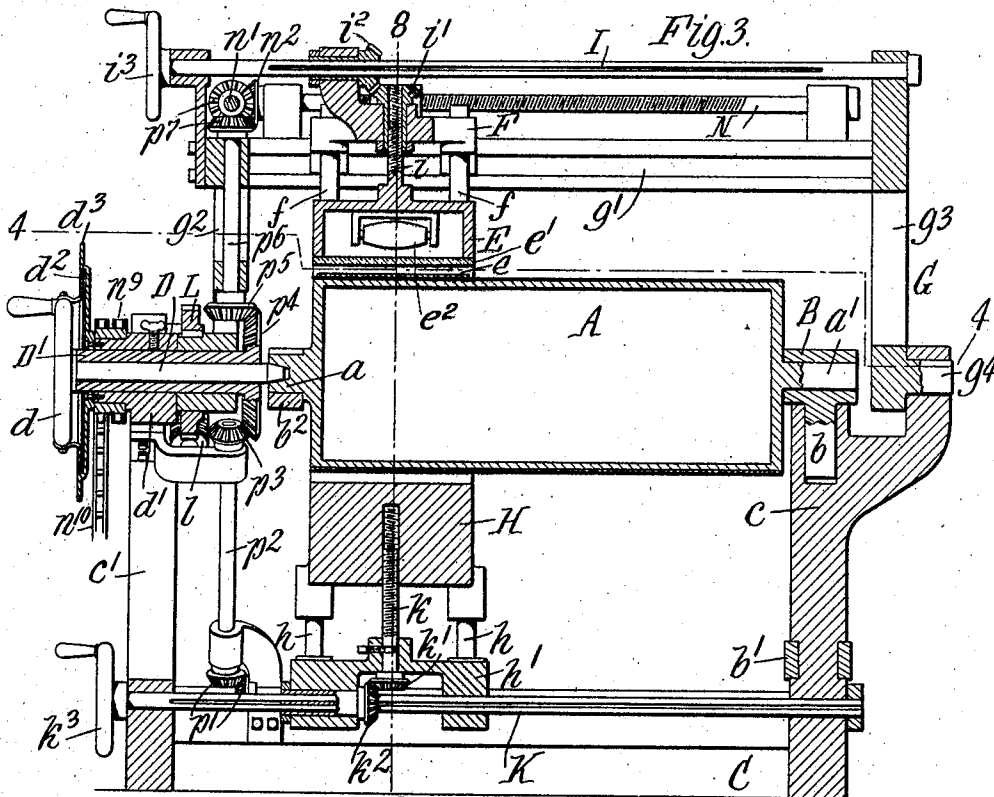
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by William C. Huebner
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7 SHEETS—SHEET 2.



Witnesses:
 CH Bund.
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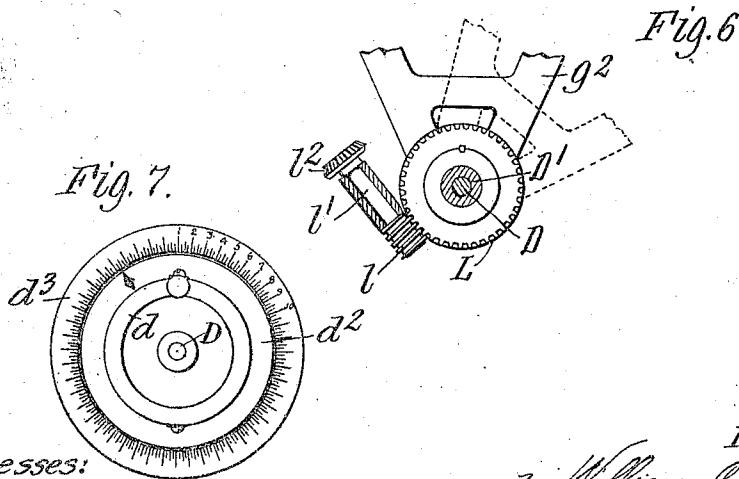
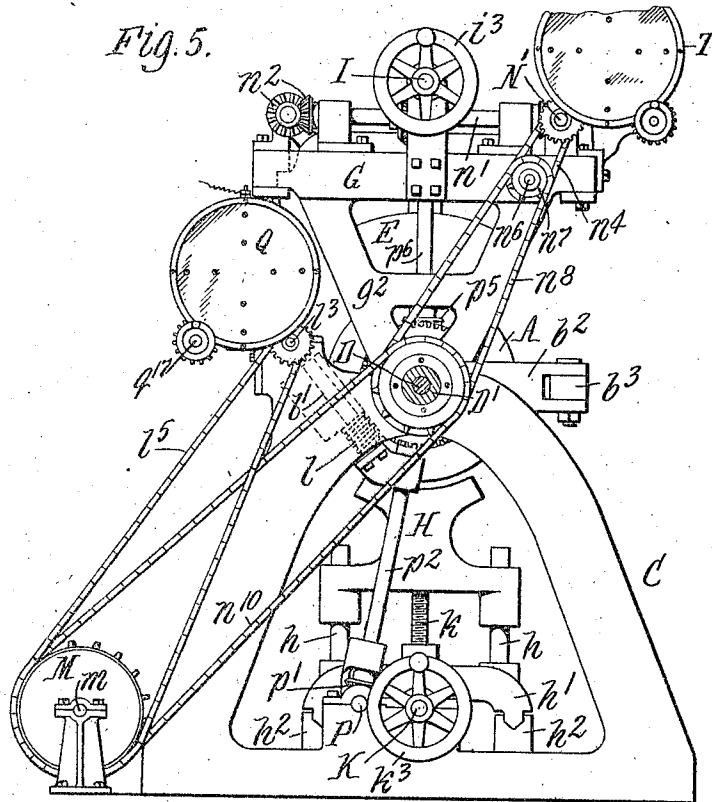
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7 SHEETS—SHEET 3.



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7 SHEETS—SHEET 6.

Fig. 10.

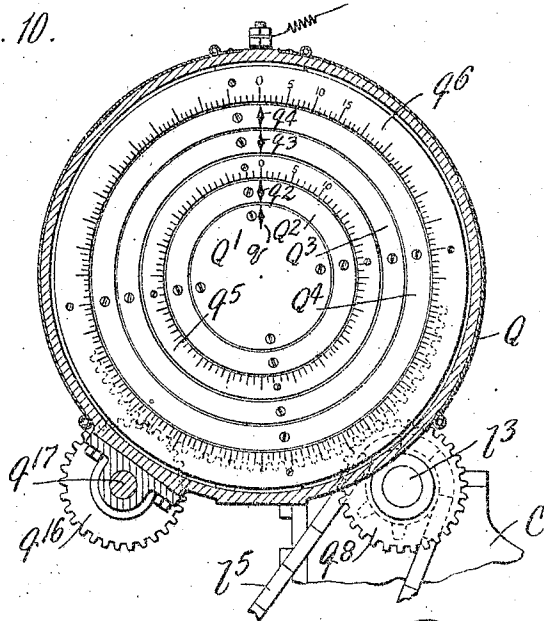
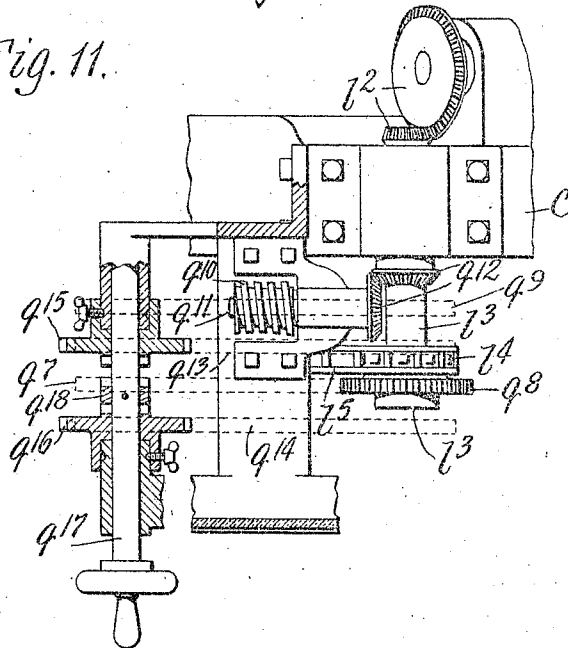


Fig. 11.



Witnesses:
 C. H. Bund.
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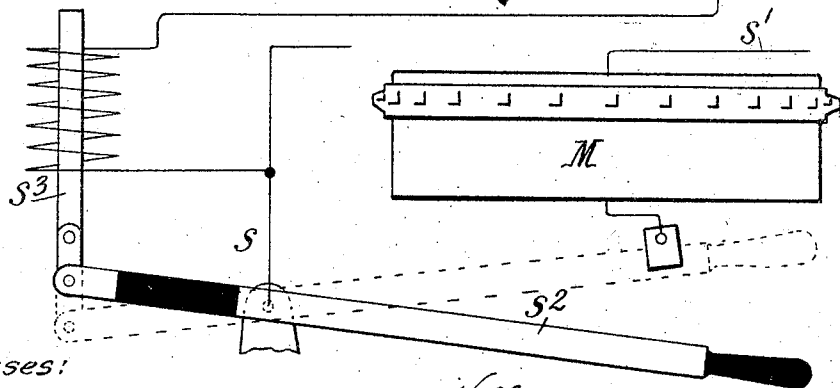
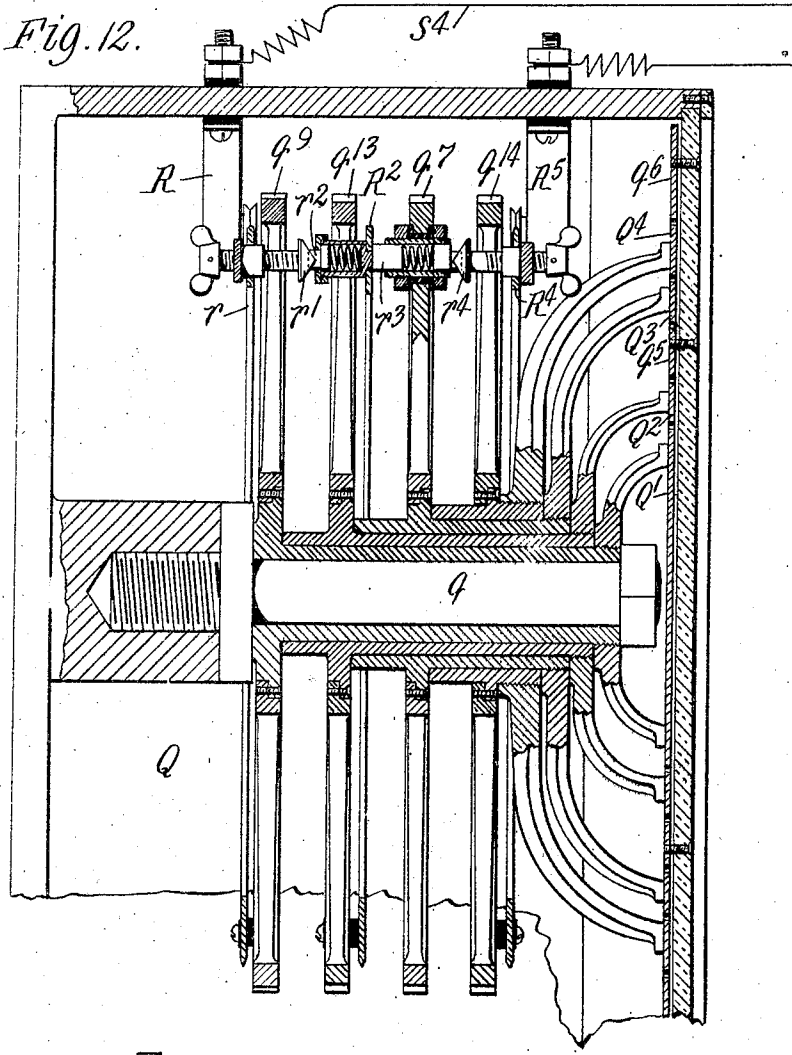
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7 SHEETS—SHEET 6.



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 PHOTOGRAPHIC PRINTING MACHINE.
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1,055,749.

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7 SHEETS—SHEET 7.

Fig. 13.

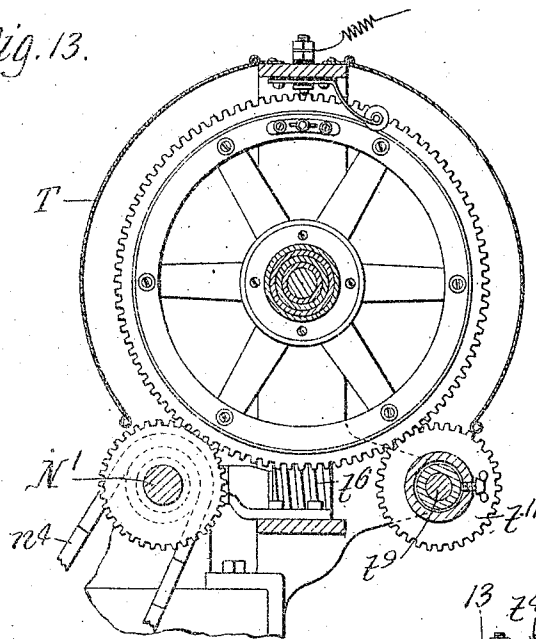


Fig. 14.

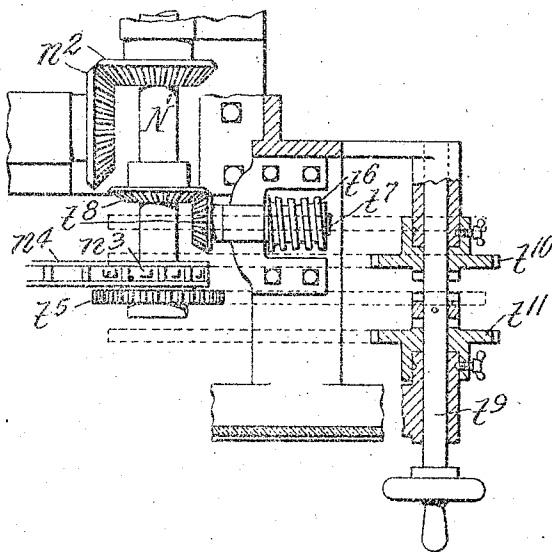
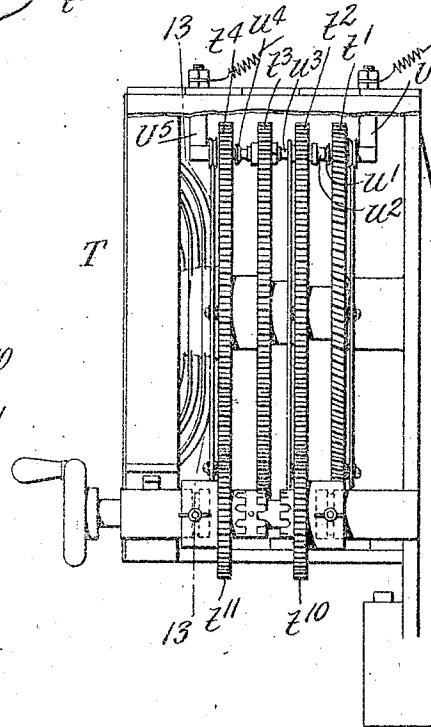


Fig. 15.



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UNITED STATES PATENT OFFICE.

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PHOTOGRAPHIC-PRINTING MACHINE.

1,055,749.

Specification of Letters Patent. Patented Mar. 11, 1913.

Application filed January 21, 1911. Serial No. 603,943.

To all whom it may concern:

Be it known that I, WILLIAM C. HUEBNER, a citizen of the United States, residing at Buffalo, in the county of Erie and State of New York, have invented a new and useful Improvement in Photographic-Printing Machines, of which the following is a specification.

This invention relates to improvements in machines of the sort disclosed in my co-pending application Serial No. 413,196, filed January 29, 1908, for producing photographic prints upon the sensitized surfaces of cylinders or rollers such, for instance, as are used in the printing of wall paper and for other purposes.

The object of the invention is to improve the construction of machines of this character whereby they can be adjusted with greater rapidity and accuracy and with less labor for producing prints in any required position or arrangement on sensitized cylindrical surfaces, so as thereby to expedite and lessen the cost of producing the prints.

Briefly stated, the machine comprises in addition to the rotatably adjustable cylinder having the sensitized surface, and a chamber, case or carrier containing suitable illuminating means and provided with a transparent concave face plate adapted to press a transparent printing film or sheet against the sensitized cylindrical surface, which are parts of the apparatus disclosed in said application, an improved mechanism for adjusting the illuminating chamber or case and the sensitized cylinder with reference to each other, both lengthwise and circumferentially, so that the printing film or sheet can be applied to that portion of the sensitized surface upon which the print or prints is or are to be made. The adjusting mechanism includes micrometer controlling or adjusting devices which are adapted to be readily set for a predetermined adjustment of the sensitized cylinder and light chamber and operate to automatically control the adjustment of the parts with great precision, thereby enabling the prints to be made on the sensitized surface in exactly the required positions. The machine is also provided with a back support or rest which is adjustable with the illuminating chamber and is adapted

to bear against the cylinder opposite to the illuminating chamber to hold the cylinder from springing under the pressure of the illuminating chamber.

In the accompanying drawings, consisting of seven sheets: Figure 1 is a side elevation, partly broken away, of a photographic printing machine embodying the invention. Fig. 2 is a plan view thereof. Fig. 3 is a central longitudinal sectional elevation thereof. Fig. 4 is a sectional plan thereof on line 4—4, Fig. 3, showing the pivoted frame for the sensitized cylinder swung to one side for removing the cylinder. Fig. 5 is an end elevation, partly in section, of the machine. Fig. 6 is a fragmentary sectional elevation of the pivoted carrier for the illuminating chamber and its adjusting mechanism. Fig. 7 is a face view of the adjusting wheel and dial for the sensitized cylinder. Fig. 8 is a transverse sectional elevation of the machine in line 8—8, Fig. 3. Fig. 9 is a fragmentary sectional elevation of the adjusting mechanism for the pressure device. Fig. 10 is an elevation partly in section, on an enlarged scale, of the micrometer controller for the circumferential adjusting mechanism. Fig. 11 is a plan view, partly in section, of the gearing thereof. Fig. 12 is a longitudinal sectional elevation, on a still larger scale, of the micrometer controller, and a diagram of the electrical connections for the clutch controlled thereby. Fig. 13 is a transverse sectional elevation, on an enlarged scale, of the other micrometer controlling device, on line 13—13, Fig. 15. Fig. 14 is a sectional plan of the gearing thereof. Fig. 15 is an elevation, with the casing partially broken away, of the micrometer device.

Like reference characters refer to like parts in the several figures.

A represents the cylinder or roller which is provided with the sensitized surface and which is journaled to rotate in a frame B which in turn is pivoted to swing horizontally on a stationary main frame C. The sensitized surface can be provided either directly on the printing cylinder or roller itself, or on a separate thin plate, sheet or tube which is fastened on a cylinder or roller. In the construction shown, the cylinder A is provided with journals *a a'* at

its ends seated in bearings in the opposite ends of the frame B, which is pivoted to the main frame so that it can be swung to one side, as shown in Fig. 4, by a pivot *b* seated in the head of an upright standard *c* at one end of the main frame and an inclined brace *b'* having a pivotal bearing on the lower portion of the standard. The bearing piece *b''* at the free end of the pivoted frame B is hinged to a sliding section *b'''* of the side bar of the frame so that it can be swung aside, as shown by broken lines in Fig. 4, to permit the removal of the cylinder from the pivoted frame.

D represents a shaft which is suitably journaled on a standard *c'* at the end of the main frame adjacent to the free end of the pivoted frame B and is provided at its outer end with a hand wheel *d* for turning the cylinder. This shaft is adapted to slide endwise in its bearing to engage and release the cylinder and is adapted to interlock therewith by any suitable means, for instance, by the reduced inner end of the shaft entering a socket in the adjacent journal of the cylinder, as shown. When the shaft is engaged with the cylinder it locks the pivoted cylinder supporting frame B from movement, and when the shaft is disengaged from the cylinder the frame can be swung to one side. As shown, the shaft D is journaled in a hollow shaft D' which in turn is journaled in a bearing *d'* on the standard *c'*. The circumferential adjustment of the cylinder can be observed by reference to an index on a ring *d''* secured to the hand wheel *d* cooperating with a graduated disk *d'''* secured on the standard *c'* of the main frame.

E represents the illuminating chamber or case, and *e*, Figs. 3 and 8, the flexible transparent printing film or sheet which is arranged between the transparent concave face plate *e'* of the chamber and the sensitized surface of the roller or cylinder. This chamber contains electric lamps *e''*, or other suitable illuminating apparatus, and is so mounted that it can be adjusted lengthwise and also circumferentially of the cylinder for placing the printing film or sheet opposite the required portion of the cylinder, and it can also be moved toward and from the cylinder for pressing the film or sheet closely against the sensitized surface and removing it therefrom. The transparent face plate of the chamber is of proper segmental cylindrical shape to fit the cylinder closely and press the flexible printing film or sheet evenly against the sensitized surface. The printing film or sheet extends across the concave face of the face plate and is secured at its opposite ends to the chamber by clamping devices *e'''* of any suitable kind. For adjusting the illuminating chamber as explained, it is preferably

mounted to move radially toward and from the cylinder on a carriage F, and this carriage is mounted to move lengthwise of the cylinder in a carrier frame G which is pivoted concentrically with the axis of the cylinder. The illuminating chamber is guided radially by rods *f* thereon sliding in holes in the carriage F, and the carriage is guided lengthwise by lugs *g* thereon sliding in guides *g'* on the longitudinal bars of the carrier frame G. The latter has end pieces *g'' g'''*, the former pivotally supported on the inner end of the hollow adjusting shaft D' and the latter pivoted by a pin *g''* on the frame standard *c*.

H, Figs. 3, 4 and 8, represents the back-support or rest for supporting the cylinder under the pressure of the illuminating chamber. The back support is arranged under the cylinder opposite the illuminating chamber and is shown as being movable toward and from the cylinder on guides *h* on a carriage *h'* which is movable on longitudinal guides *h''* on the main frame so that the back support can be adjusted lengthwise of the cylinder with the illuminating chamber to thus keep it always opposite thereto.

The illuminating chamber is moved toward and from the cylinder by suitable means, such, for instance, as a screw *i* secured to the chamber and working in the internally threaded hub of a bevel wheel *i'* which is journaled on the carriage F and is driven by a bevel wheel *i''* on a shaft I journaled on the carrier frame G and provided with a hand wheel *i'''* for turning it. The bevel wheel *i''* is journaled in a bearing on the carriage F and splined on the shaft I so that it moves lengthwise with the carriage to permit the radial movement of the illuminating chamber in any position thereof. The back support H is also moved toward and from the cylinder by suitable means, such, for instance, as a screw *k* connected by bevel wheels *k'* *k''* to a shaft K which is journaled in the lower portion of the main frame and is provided with a hand wheel *k'''* for turning it. The bevel wheel *k''* is journaled in a bearing on the carriage *h'* and splined on the shaft K so as to move lengthwise with the carriage.

The following mechanism is shown for swinging the carrier frame G to adjust the illuminating chamber circumferentially of the sensitized cylinder: A worm wheel L, Figs. 3, 4 and 6, is secured to the end piece *g''* of the carrier frame G concentric with the axis of the frame and meshes with a worm *l*, Figs. 4 and 6, on an inclined shaft *l'* which is journaled on the standard *c'* and is connected by bevel gears *l''* to a horizontal shaft *l'''* also journaled on the standard *c'*. This shaft is connected by a chain wheel *l''''*, Fig. 11, and a chain *l'''''* to the loose or driven member of an electrical clutch M, 130

the driving member of which is secured to a drive shaft m which can be driven by any means, for instance, by a power belt running on a pulley m' . The clutch M can be of any suitable construction in which the driven member is adapted to turn with the driving member and drive the circumferential adjusting mechanism when the clutch is energized by the passage of an electric current through it, and to stop and arrest further movement of the adjusting mechanism when the clutch-operating current is interrupted. The carrier frame G can be swung to a position in which the face plate of the illuminating chamber stands approximately vertical, as shown by dotted lines in Fig. 8, and the cylinder support swung out of the way to facilitate the mounting, centering and registering of the transparent printing film on the concave face plate of the illuminating chamber. The adjustment must be exact and it is facilitated by this arrangement.

The mechanism shown for adjusting the illuminating chamber lengthwise of the cylinder comprises two screws N , N' , Figs. 1 and 2, journaled on the carrier frame G and working in nuts u on the carriage F . These screws are connected to turn simultaneously by a cross shaft n' which is journaled on the carrier frame G and is connected by bevel gears n^2 to each screw. One of the screws, N' , is provided at one end with a chain wheel n^3 connected by a chain n^4 and chain wheel n^5 , Figs. 1 and 5, to a shaft n^6 which is journaled on the carrier frame and is connected by a chain wheel n^7 and chain n^8 to a chain wheel n^9 . This wheel n^9 is journaled on the standard c' concentrically with the pivotal axis of the carrier frame and is connected by a chain n^{10} with the loose or driven member of a second electrical clutch O , the driving member of which is secured to the drive shaft m . This clutch operates similarly to the clutch M , through the described mechanism, to adjust the illuminating chamber on the carrier frame lengthwise of the cylinder.

The back support H is adjusted lengthwise of the cylinder by a screw P , Figs. 4 and 8, which is journaled on the lower portion of the main frame and works in a threaded hole or nut p in the carriage h' . This screw is connected by bevel gears p^1 to the lower end of a shaft p^2 which is journaled on the main frame and is provided at its upper end with a bevel gear p^3 meshing with a bevel gear p^4 on the hollow shaft D' . The bevel gear p^4 , which is concentric with the axis of the carrier frame, meshes with a bevel gear p^5 on a shaft p^6 which is journaled on the carrier frame and is connected by bevel gears p^7 with the cross shaft n' . The illuminating chamber and

back support are thus adjusted simultaneously and correspondingly by the rotation of the driven member of the clutch O . Mechanism of different construction could be employed for thus simultaneously adjusting the illuminating chamber and back support.

Each of the clutch driven mechanisms for adjusting the illuminating chamber circumferentially and lengthwise is set in motion by the actuation of a suitable switch to close the clutch circuit, and a micrometer controller, which is set by hand in accordance with the desired adjustment of the illuminating chamber, operates automatically when the illuminating chamber reaches this predetermined adjustment, to establish electrical connections for opening the clutch circuit to stop the adjusting mechanism.

The micrometer controller shown for the circumferential adjusting mechanism is constructed as follows, see Figs. 10-12: Q represents the controller casing, which has a glass front plate. Q' Q^2 Q^3 Q^4 represent four wheels in the casing journaled concentrically one within the other on an axle or arbor q . The rims of these wheels are located just in rear of the front plate of the casing where they can be readily seen. The wheels Q' Q^2 are provided on the front faces with indexes or pointers q' and q^2 , respectively, which cooperate with a stationary graduated scale q^5 which surrounds the wheel Q^2 and may be formed on or secured to the front plate. The wheels Q^3 Q^4 are also provided with indexes or pointers q^3 q^4 which cooperate with a stationary graduated scale q^6 surrounding the wheel Q^4 . The scale q^5 has equal divisions representing inches (or other units of measure) which the illuminating chamber travels circumferentially, while the other scale, q^6 , has divisions indicating small fractions of the units represented by the first scale q^5 . For example, the scale q^6 has two hundred equal divisions each representing one two-hundredths of an inch. The wheels Q' Q^3 are geared to the circumferential adjusting mechanism so that the former or units wheel Q' is turned a distance equal to one of the unit divisions of the scale q^5 during a corresponding circumferential travel of the illuminating chamber, and the other or fractions wheel Q^3 is turned one complete revolution for each movement of the units wheel Q' one inch or unit space. The gearing shown for this purpose (see Figs. 11 and 12) consists of a gear rim or wheel q^7 secured to the hub of the fractions wheel Q^3 and meshing with a pinion q^8 on the horizontal shaft l^3 , and a gear rim or wheel q^9 secured to the hub of the units wheel Q' and meshing with a worm q^{10} on a shaft q^{11} which is connected by bevel gears q^{12} to the horizontal shaft l^3 . The other two

wheels, Q^2 and Q^4 , of the controller are adapted to be independently turned or set by hand through suitable means, for instance, by gear rims or wheels q^{13} and q^{14} secured respectively to the hubs of the wheels Q^2 and Q^4 and meshing with pinions q^{15} and q^{16} on a setting shaft q^{17} which is adapted to be turned by hand. The pinions q^{15} and q^{16} are loose on the setting shaft q^{17} , and the shaft is provided with a clutch member q^{18} adapted to be interlocked with one or the other of the wheels for turning it and the companion controller wheel by moving the shaft endwise in its bearings.

R represents a contact brush or device secured to the controller casing Q and bearing against a conducting ring r which is secured to and insulated from the gear rim of the driven units wheel Q' . A contact r' secured to this ring r is adapted to engage a cooperating contact r^2 carried by a conducting ring R^2 which is secured to and insulated from the gear rim of the adjustable units wheel Q^2 . This ring R^2 turns in contact with a contact r^3 which is carried by and insulated from the gear rim of the driven fractions wheel Q^3 and is adapted to engage a contact r^4 carried by a conducting ring R^4 which is secured to and insulated from the adjustable fractions wheel Q^4 . A stationary contact brush or device R^5 on the casing bears against this conducting ring R^4 . In the use of the controller the adjustable units and fractions wheels Q^2 and Q^4 are turned to place their indexes opposite members of the scales q^5 and q^6 representing, in inches and fractions thereof, a predetermined desired adjustment of the illuminating chamber. The circumferential adjusting mechanism is then set in operation by closing the circuit of its driving clutch M. When the illuminating chamber has traveled this distance the contacts r' and r^2 carried by the units and fractions wheels Q' and Q^2 , which are driven by the adjusting mechanism, will be brought into engagement with the cooperating contacts r^3 and r^4 carried by the adjustable units and fractions wheels Q^2 and Q^4 , thus placing the contact brushes R and R^5 in electrical connection. These brushes are connected with an electrical device for opening the circuit of the clutch M which drives the circumferential adjusting mechanism so that the electrical connection of the brushes, as explained, will stop the adjusting mechanism and the illuminating chamber.

Any suitable means controlled by the controller can be used for opening the clutch circuit. As shown diagrammatically in Fig. 12, the clutch M is connected across an operating circuit s s' in which is interposed a switch s^2 adapted to be moved by hand to close the circuit and start the clutch. This switch is connected to the core of a sole-

noid s^3 . One terminal of the solenoid winding is connected to one side s of the clutch circuit, or other circuit, and the other terminal of the solenoid winding is connected to the brush R^5 of the micrometer controller, while the other brush R of the controller is connected by the wire s^4 to the other side of the circuit. Consequently, when the brushes R and R^5 are connected by the operation of the controller the solenoid s^3 will be energized and will move the switch s^2 to open the clutch circuit and stop the clutch driven mechanism.

T, Figs. 2, 5 and 13 and 15, represents the micrometer controller for the clutch Q which drives the mechanism that adjusts the illuminating chamber lengthwise. This controller is constructed and operates to control the clutch Q in the same way that the controller Q controls the clutch M, and it is only necessary to describe the drive gearing therefor, which is arranged somewhat differently from the drive gearing of the controller Q, owing to the different arrangement of the two controllers in the machine. The controller T has four wheels corresponding in arrangement and function to the four wheels of the controller Q, and these wheels are provided with gear rims or wheels t' t^2 t^3 t^4 , respectively. The gear rim t^2 of the fractions wheel is driven by a gear wheel t^5 , Figs. 14 and 15, on the adjusting screw N' , and the gear rim t' of the units wheel is driven at the required slower speed by a worm t^6 on a shaft t^7 which is connected by bevel gears t^8 with the adjusting screw N' . t^9 represents the setting shaft of this controller which is provided with loose gear wheels t^{10} and t^{11} meshing respectively with the gear rims t^2 t^4 of the adjustable units and fractions wheels and adapted to be separately coupled to the shaft t^9 by endwise movement thereof.

u' u^2 u^3 u^4 represent contacts carried by the gear rims t' t^2 t^3 t^4 , respectively, and adapted to electrically connect the stationary contact brushes U and U^5 for starting the clutch Q, controlled by this controller, in the same manner as the contacts of the controller Q.

The controller T controls the mechanism which adjusts both the illuminating chamber and the back support H lengthwise with reference to the sensitized cylinder.

A specific construction of the micrometer controllers Q and T for stopping the adjusting mechanisms has been above described to enable a complete understanding of the controlling means, but the invention is not restricted to this construction and means of other construction adapted to operate in an analogous manner to control the adjustments of the adjustable devices of the machine could be employed.

The construction of the micrometer con-

trollers *per se* is not claimed in this application, as the same forms the subject-matter of another application filed April 7, 1911, Serial No. 619,560.

5 I claim as my invention:

1. The combination with a cylinder provided with a sensitized surface, and an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, of adjusting means for changing the position of said chamber with reference to said cylinder, and controlling means adapted to be set to determine the adjustment of said chamber and which automatically cause the stopping of said adjusting means, substantially as set forth.

2. The combination with a cylinder provided with a sensitized surface, and an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, of adjusting means for changing the position of said chamber circumferentially with reference to said cylinder, and controlling means adapted to be set to determine the adjustment of said chamber and which automatically cause the stopping of said adjusting means, substantially as set forth.

3. The combination with a cylinder provided with a sensitized surface, and an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, of adjusting means for changing the position of said chamber lengthwise with reference to said cylinder, and controlling means adapted to be set to determine the adjustment of said chamber and which automatically cause the stopping of said adjusting means, substantially as set forth.

4. The combination with a cylinder provided with a sensitized surface, and an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, of means for turning said cylinder to different positions, adjusting means for changing the position of said chamber with reference to said cylinder, and controlling means adapted to be set to determine the adjustment of said chamber and which automatically cause the stopping of said adjusting means, substantially as set forth.

5. The combination with a cylinder provided with a sensitized surface, and an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, of means for adjusting said chamber circumferentially of said cylinder, means for adjusting said chamber lengthwise of said cylinder, controlling devices adapted to be set to determine the circumferential and lengthwise adjustments of said chamber, and

means controlled by said devices for stopping said circumferential and lengthwise adjusting means, substantially as set forth.

6. The combination with a cylinder provided with a sensitized surface, and an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, of power-driven adjusting means for changing the position of said chamber with reference to said cylinder, and controlling means adapted to be set to determine the adjustment of said chamber and which automatically cause the stopping of said adjusting means, substantially as set forth.

7. The combination with a cylinder provided with a sensitized surface, and an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, of adjusting means for changing the position of said chamber with reference to said cylinder, an electric clutch for driving said adjusting means, a controlling device which is adapted to be set to determine the adjustment of said chamber, and means controlled by said controlling device for interrupting the clutch operating current, substantially as set forth.

8. The combination with a cylinder provided with a sensitized surface, and an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, of adjusting means for changing the position of said chamber with reference to said cylinder, and electrical controlling means for said adjusting means including a device having contacts which are adapted to be set to determine the adjustment of said chamber, driven contacts and means which cause the latter to travel correspondingly with said adjusting means and to cooperate with said adjustable contacts, and means controlled by said controlling means which act to stop said adjusting means, substantially as set forth.

9. The combination with a cylinder provided with a sensitized surface, an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, and a back support for said cylinder opposite the illuminating chamber, of adjusting means for changing the position of said chamber and back support with reference to said cylinder, and controlling means adapted to be set to determine the adjustment of said chamber and back support and which automatically cause the stopping of said adjusting means, substantially as set forth.

10. The combination of a main frame, a support which is pivoted on said main frame, a cylinder provided with a sensitized surface which is rotatably mounted on said

pivoted support, an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, a back support for said cylinder movable lengthwise of said cylinder on said main frame, and adjusting means for changing the positions of said chamber and back support lengthwise with reference to said cylinder, substantially as set forth.

11. The combination of a main frame, a support which is pivoted on said main frame, a cylinder provided with a sensitized surface which is rotatably mounted on said pivoted support, an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, a back support for said cylinder movable lengthwise of the cylinder on said main frame, means for moving said back support toward and away from said cylinder, and adjusting means for changing the positions of said chamber and back support lengthwise with reference to said cylinder, substantially as set forth.

12. The combination of a main frame, a support which is pivoted on said main frame, a cylinder provided with a sensitized surface which is rotatably mounted on said pivoted support, an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, a back support for said cylinder movable lengthwise of the cylinder on said main frame, adjusting means for changing the positions of said chamber and back support lengthwise with reference to said cylinder, and controlling means adapted to be set to determine the adjustment of said chamber and which automatically cause the stopping of said adjusting means, substantially as set forth.

13. The combination with a cylinder provided with a sensitized surface, and an illuminating chamber movable toward the cylinder to press a printing film or sheet

against the sensitized cylindrical surface, of a carrier frame on which said chamber is movably mounted and which is pivoted concentrically with said cylinder, and mechanism for adjusting said chamber on said carrier frame lengthwise of said cylinder, substantially as set forth.

14. The combination with a cylinder provided with a sensitized surface, and an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, of a carrier frame on which said chamber is movably mounted and which is pivoted concentrically with said cylinder, mechanism for adjusting said chamber on said carrier frame lengthwise of said cylinder, and controlling means adapted to be set to determine the lengthwise adjustment of said chamber and which automatically cause the stopping of said adjusting mechanism, substantially as set forth.

15. The combination with a cylinder provided with a sensitized surface, and an illuminating chamber movable toward the cylinder to press a printing film or sheet against the sensitized cylindrical surface, of a carrier frame on which said chamber is movably mounted and which is pivoted concentrically with said cylinder, driven mechanisms for adjusting said carrier frame circumferentially of said cylinder and for adjusting said chamber on said carrier frame lengthwise of the cylinder, and controlling means adapted to be set to determine the adjustments of said carrier frame and of said chamber and which automatically cause the stopping of said adjusting mechanisms, substantially as set forth.

Witness my hand in the presence of two subscribing witnesses.

WILLIAM C. HUEBNER.

Witnesses:

C. W. PARKER,
A. L. McGEE.