

a photographic camera in combination with a secondary guiding way or track rubbing or lowering the front or back of the camera as the case may be, so as to keep the base line of the primarily attached subject matter, the focused lens and the base line of the opening exposure slide on the sensitized plate, all in one direct and straight line, whatever position the camera may occupy upon the main track or whether the lettering be focused large or small upon the sensitized plate, 12th. In the art of obtaining surfaces for printing reading matter from, by means of an elastic band or surface to which the subject matter has been primarily attached and subsequently passed through an adjusting and shaping machine, in combination with a photographic camera, an exposure slide in the plate shield of the photographic camera giving, at whatever position the camera may occupy in relation to the primarily attached subject matter, a width of opening exposure suitable to the height of the lettering as focused upon the sensitized plate, whether large or small; 13th. In the art of obtaining surfaces for printing reading matter from, by means of an elastic band or surface to which the subject matter has been primarily attached and subsequently passed through an adjusting and shaping machine, in combination with a photographic camera, a sensitized plate frame within the sensitized plate shield of the camera, movable equally at each exposure and uniformly with and to a similar width of lines as the opening exposure slide, but remaining stationary at each shutting of the opening exposure slide; 14th. In the composing and attaching machine the special combination, as follows: the combination of a flanging key *a*, the connecting attachments 23, *a*, 21 and *p*, a knee lever *r* and a paper clip *t* acting as a single set, and the congregation of these sets in sufficient numbers to accomplish the purpose; 15th. The combination of a paper clip *t*, a spring *c*, a clip pointer 25 acting as a single set and the punched holes in the ribboned paper, and the congregation of these sets in sufficient numbers to accomplish the purpose specified; 16th. The ribboned paper or other suitable material printed and punched, combined with the converging paper or channel *b b b*, the shears *d*, and elastic band *w*; 17th. The combination of the flanging keys *a a a*, the spring *p*, the cross bar *h*, the cut off lever *r*, the connecting rod *g* and the shears *d*; 18th. The flanging keys *a a a* and the knee lever *r* by their connections combined with the cross bar *h*, the connecting rod *g*, the crank lever *l* and the friction cam *n*; 19th. The knee levers *r*, each and collectively, and the cross bar *h* having reference to graduated distances between them at *g*, corresponding to the width of their respective designated letters, figures, or points combined with the feed motion mechanism; 20th. The springs 26, 20 and *m*; 21st. The feed motion of a machine composing and attaching the subject matter to an elastic band, a friction cam or cams or friction, knee joint operating directly or indirectly upon the elastic band by suitable mechanism so as to produce a variety of feeds suitable to the various widths of letters, &c.; 22nd. In the photographic machinery, the special combinations, as follows: the elastic band or surface *w* to which the subject matter has been primarily attached, combined with the feeding rollers 26a 26b and the shaping and adjusting machine 52 23rd. The elastic band or surface *w* to which the subject matter has been primarily attached, combined with the lever 23a and its scale 28, also with the levers 21a and 21b and their scales 21b 21c; 25th. The combination of the shaping and adjusting machine 52 and the way or track 37, with a recorded register of type sizes thereon, also the camera 33 with a recorded register of type sizes thereon; 26th. The combination of the increasing lever 27, the opening exposure slide 35 and the frame 32 connecting both; 27th. The combination of the opening exposure slide 35, the knee joint or friction cam 31a 31b, the friction bars 31c 31d, the frame 53 to which they are attached, and is contained sensitized plate 30, all and each of them; 28th. The combination of the elastic band *w*, the camera 33, the opening exposure at 50 and the moveable sensitized plate 30; 29th. For the purposes of obtaining various sizes of lettering and a correct focus thereof, the combination of pointers 32 and 18 on the camera with their respective scales or registers of type sizes; 30th. For the purposes of justification and making various lengths of lines, the elastic band *w* with the subject matter attached, the pointer shields 5, 5, and the recorded scale 60; 31st. The combination of a box 61, the adjustable ornamental, screen, fancy lettering and other slides contained therein, and the elastic band *w* having the subject matter attached thereto; 32nd. The combination of the secondary track 42, the elastic band *w*, the lens 39 and the base of the opening exposure at 50; 33rd. The combination of the elastic band *w* with the elastic and pliable contouring guide 56; 34th. The combination, in the feed motion, of the sensitized plate in the camera of a feeding friction knee joint or cam 31b with a check friction knee joint or cam 31a, the combination of both with and operating upon a smooth feeding surface, be it curved or be it straight; 35th. In machinery for printing and punching ribboned paper, the combination as follows: In a printing press, printing and punching coils or strips of ribboned paper, the combination of the printing with the punching in one and the same operation and time; 36th. The combination of a discharging reel *a* and the ribboned paper *e* with the printing wheel *a*, its type 28 and its punches 20 operating in and upon the wheel *b* for the purpose of producing the result; 37th. The combination of a discharging reel *c* and of a receiving reel *d* with the wheels *a* and *b*; 38th. The combination of the receiving reel *d* with the pinion wheel *a*, the cord *w* and the weight *p*; 39th. The combination of the guiding and pressure roller *i*, and of the pressure roller *j* with the ribboned paper *e*, for the purpose of guiding and keeping down the ribboned paper against the pressure wheel *b*; 40th. The combination of the type 28 and the punches 20, in the printing wheel *a* with the holes 21 and the pressure wheel *b* in which they are; 41st. The combination of the ribboned paper printed and punched with the receiving and winding reel *d*.

## No. 7396. Machinery and Process for obtaining Printing Surfaces.

(Machine et procédé pour obtenir des planches à imprimer.)

George P. Drummond, Ottawa, Ont., 20th April, 1877, for 5 years.

**Claim.**—1st. The art of obtaining surfaces for printing reading matter from, by first impressing from a type writing, printing or setting machine, the subject matter on an elastic band or surface, and afterwards transferring the same, by any photo-mechanical process, to metal, stone or other surfaces for printing; 2nd. The art of obtaining surfaces for printing reading matter from, by first impressing from a type-writing, printing or setting machine, the subject matter on an unelastic band or surface, and afterwards transferring the same by any photo-mechanical process, to metal, stone or other surfaces for printing; 3rd. The art of obtaining surfaces for printing reading matter from, in reference to the justification thereof, firstly by straining an elastic band or surface on which the subject matter has been primarily

printed, so as to elongate the subject matter within certain limits or lengths of lines, according to conventional practices among printers, and secondly to contract or elongate the subject matter by turning the elastic or unelastic band or surface upon which it has been primarily printed, to any desired angle in the same plane with the camera, and then transferring either or both by any photo-mechanical process to metal, stone or other surfaces for printing; 4th. The art of obtaining surfaces for printing reading matter from, by angling, shaping or contouring an elastic or unelastic band or surface, or by stretching or straining an elastic band or surface on which the subject matter has been primarily printed so as to impart varieties of shapes and designs to the lettering, which then by any photo-mechanical process are transferred to metal, stone or other surfaces for printing; 5th. The art of obtaining surfaces for printing reading matter from, by placing over or alongside the subject matter which has been primarily printed upon an elastic or unelastic band or surface, any screens, letter, ornamental designs, whether black, white or any color, or transparent, or by intervening between the lines of subject matter as they are photographed, any ornamental, pictures or designs, which combinations, by any photo-mechanical process, are then transferred to metal, stone or other surfaces for printing; 6th. The art of obtaining surfaces for printing reading matter from, by increasing or decreasing the distance between the sensitized plate in the camera and the subject matter primarily printed upon an elastic or unelastic band or surface, so as to produce various sizes of lettering, intermingled or otherwise, which then, by any photo-mechanical process, are transferred to metal, stone or other surfaces for printing; 7th. In the art of obtaining surfaces for printing reading matter from, and the foregoing manner of effecting it, a composing, printing and transferring machine having flanging keys, operating type of soft or hard metal, or better representations of the various letters of the alphabet, punctuation points, figures, and all other signs necessary to the production of reading matter of any kind, by means of which machine reading matter may be rapidly composed and transferred or printed directly or indirectly upon a band or surface of any elastic or unelastic material. It directly, by aid of an inking roller upon the surface of the elementary type, if indirectly, by the intervention of the impression on lead, wood or other material in relief or intaglio, which received impression is then transferred to the elastic or unelastic band or surface, printed thereon by ordinary process of inking rollers and pressure; 8th. In the art of obtaining surfaces for printing reading matter from, the combination of a band or surface of any elastic or unelastic material on which has been printed the subject matter, with a machine for adjusting and shaping it, movable as a whole upon a central and vertical axis and in that part through which the continuing line of subject matter is horizontally passed upon a horizontal axis, by means of which movements the subject matter may be readily placed at a variety of angles to the sensitized surface of the camera; 9th. The art of obtaining surfaces for printing reading matter from, and the foregoing machinery and manner of effecting it, and shaping machine operating an elastic or unelastic band or surface on which the subject matter has been primarily printed, in combination with a photographic camera, and any photo-mechanical process or printing contained in the third, fourth, fifth and sixth claims and in general the reproduction upon a sensitized plate or plates by means of photography any reading matter or its make up in any shape, printed on, attached to or lying upon an elastic or unelastic band or other surface, or substantially set forth and described, letter by letter, word by word, sentence by sentence, line by line, or lines by lines in succession or in whole or in part, and the reading matter justified, arranged and reproduced thus, transferred to metallic or other surfaces or lithographic stones, for printing by any known photo-mechanical process; 10th. In the art of obtaining surfaces for printing reading matter from, by means of an elastic or unelastic band or surface on which the subject matter has been primarily printed: a photographic camera in combination with a guiding way or track and an adjusting and shaping machine thereto; 11th. In the art of obtaining surfaces for printing reading matter from: a photographic camera in combination with an unsensitized or recorded set scale or detailed list of the various sizes of type upon its own way or track or focusing draught and a corresponding and proportionately inscribed or recorded scale or detailed list of the various sizes of type upon the guiding way or track connected with the shaping or adjusting machine, for the purpose of readily increasing or diminishing and focusing and thereby obtaining all sizes of printing from the object reading matter primarily printed on an elastic or unelastic band or surface, in any elementary or standard size by a type printing, writing or setting machine, whether the object reading matter be plain or treated fancifully; 12th. In the art of obtaining surfaces for printing reading matter from, by means of an elastic or unelastic band or surface, on which the subject matter has been primarily printed and consequently passed through an adjusting and shaping machine a photographic camera, in combination with a secondary guiding way or track, raising or lowering the front or back of the camera as the case may be, so as to keep the base line of the primarily printed subject matter, the focus lens and the base line of the opening exposure slide on the sensitized plate, all in one direct and straight line, whatever position the camera may occupy upon the main track, or whether the lettering be focused large or small upon the sensitized plate; 13th. In the art of obtaining surfaces for printing reading matter from, by means of an elastic or unelastic band or surface, on which the subject matter has been primarily printed and subsequently passed through an adjusting and shaping machine, in combination with a photographic camera, a sensitized plate frame within the sensitized plate shield of the camera, movable equally at each exposure and uniformly with and to a similar width of line as the opening exposure slide, but remaining stationary at each shutting of the opening exposure slide; 15th. In a composing, printing and transferring machine, printing reading matter, a key board of keys representing the various letters of the alphabet, having the vowels in one or two sets, each set in a body, placed at one or at both ends of the key board and having their attached type in a corresponding position, such arrangement being for the purpose specified; 16th. The combination of the keys *c c*, the type rods *a a a*, the arms 20 and the connecting rods 56 and 57, 17th. The combination of the keys *c c*, and their attached arms *z z* with the buffer rods 10 and the buffer 11 by their connecting rod 58, 18th. The combination of the rapidly revolving crank 12, the connecting rod 59 and the buffer 11, 19th. The