

G. Dunlop
Lithographic Press.

N^o 63,484.

Patented Apr. 2, 1867.

Fig. 1

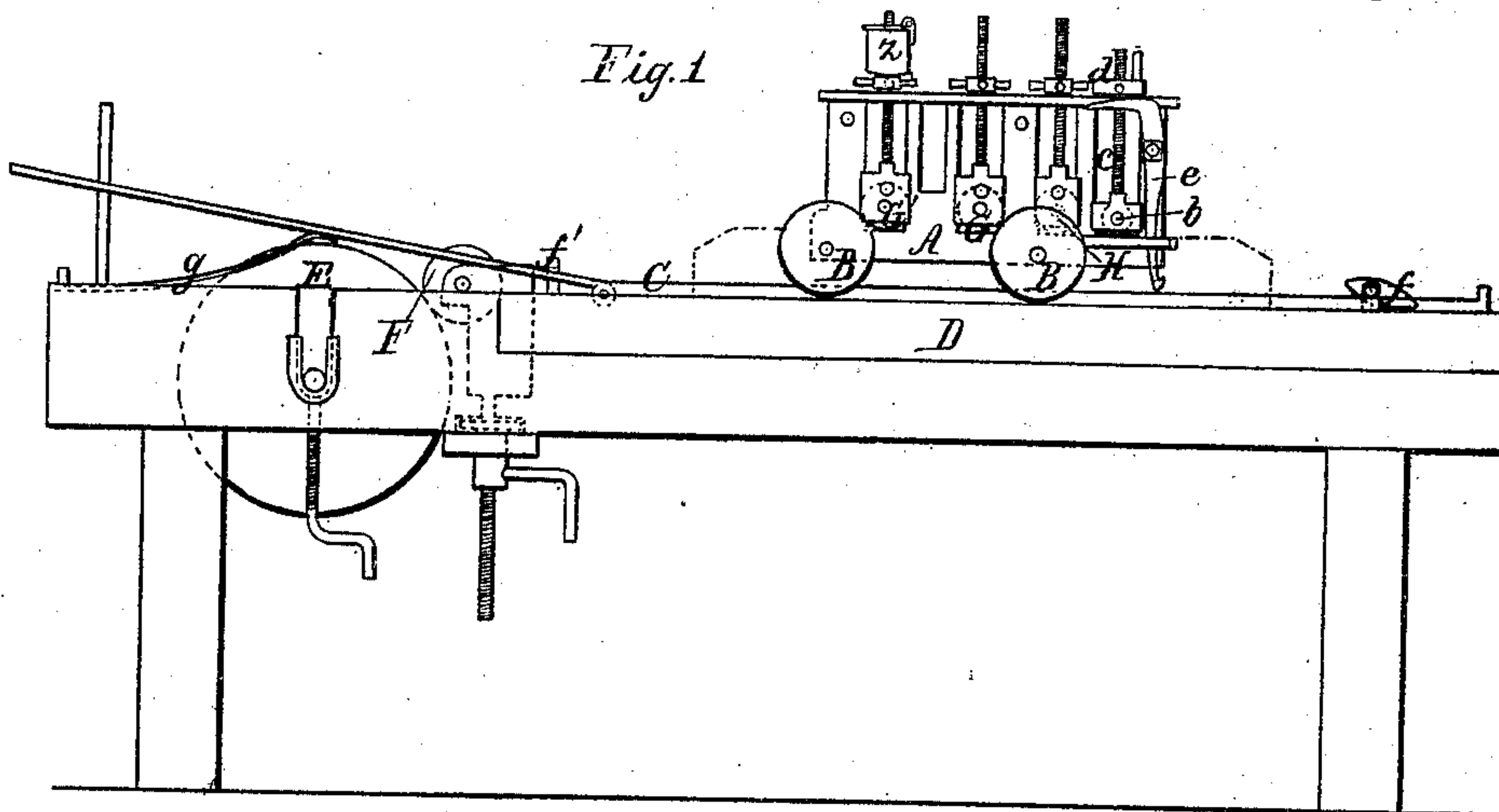
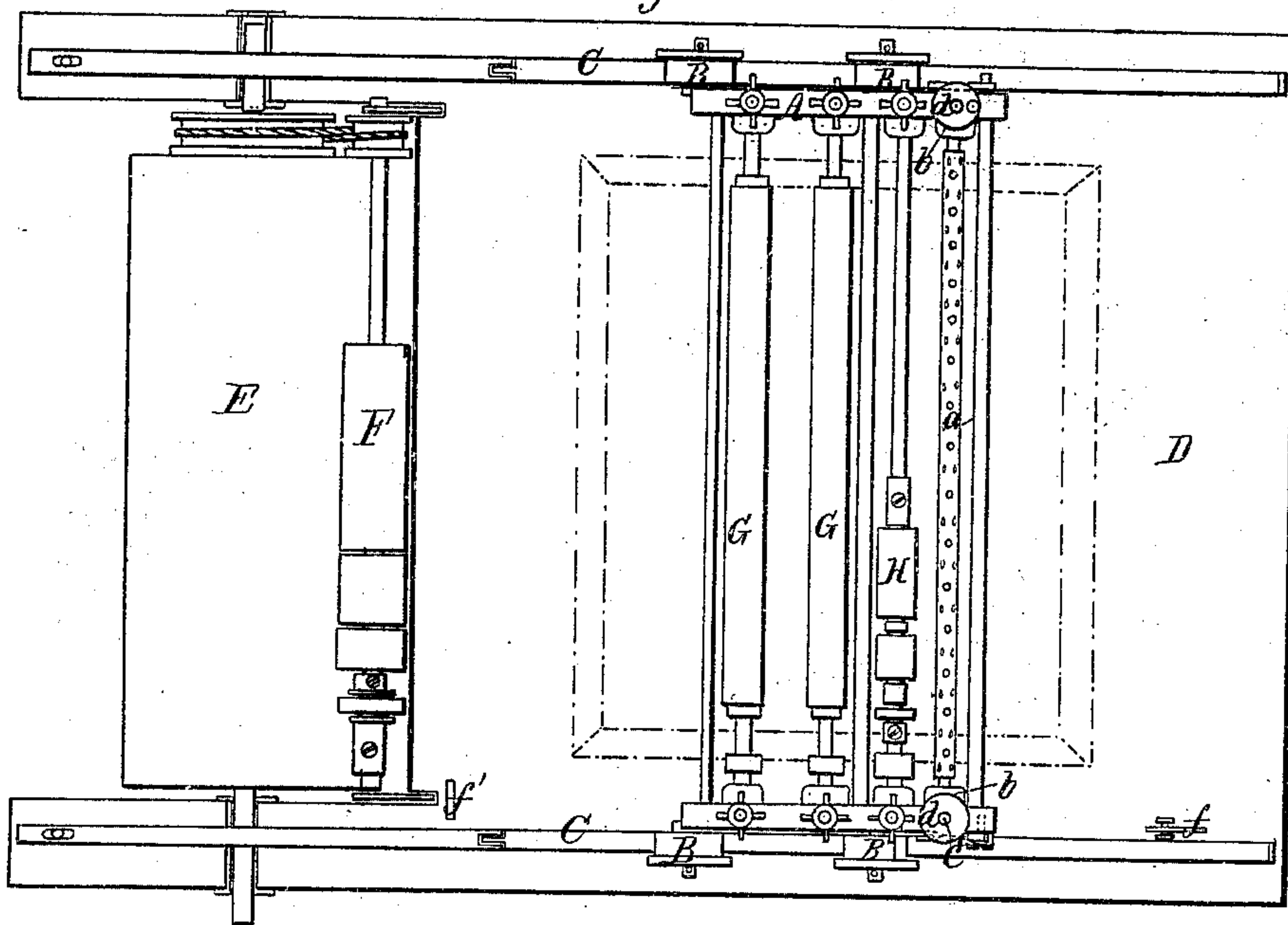


Fig. 2



Witnesses
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GEORGE DUNLOP, OF BROOKLYN, NEW YORK.

Letters Patent No. 63,489, dated April 2, 1867.

LITHOGRAPHIC PRESS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, GEORGE DUNLOP, of Marcy avenue, near Broadway, Brooklyn, E. D., in the county of Kings, and State of New York, have invented a new and improved Lithographic Press; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a side elevation of this invention.

Figure 2 is a plan or top view of the same.

Similar letters of reference indicate like parts.

This invention relates to a printing press, which may be properly termed a chromatic printing machine, a carriage or truck being provided, which forms the bearings for the wetting roller or rollers, for a sectional inking-in roller, and for one or more ordinary inking-in rollers, and which operates in combination with a sectional and with an ordinary feed roller in such a manner that by moving said carriage back and forth the rollers charge or ink in the stone, so as to produce the desired shade, impression, or effect.

A represents a carriage made of metal or any other suitable material, and provided with flanged wheels B, which run on the rails C secured to the upper surface or platform D of an ordinary lithographic press. The carriage A is provided with an ordinary wetting roller or rollers *a*, consisting of a perforated tube covered with leather or flannel, and said roller has its bearings in boxes *b*, which are adjustable by hand-wheels *d* and screws *c*, being guided by suitable standards rising from the carriage. The screws *c* pass freely through the top bars of the carriage, and a bell-crank lever, *e*, which is pivoted to the side of the carriage, bears with its short arm under the hand-wheel *d*, so that by pressing against the long arm of said bell-crank lever, the wetting roller *a* can be raised. This operation is effected automatically, as the carriage is pushed back and forth on the platform D, a dog, *f*, being provided, against which the trip-lever *e* strikes at the proper moment, so that the wetting roller will clear the stone while the carriage passes back toward the feed rollers, and as the same approaches the said feed rollers, a stationary cam, *f'*, pushes the trip-lever back, and the wetting roller is lowered. The stone, which is indicated in red outlines in the drawing, is adjusted on the platform in the ordinary manner, and there are two feed rollers E F, one being continuous like a feed roller of the ordinary construction, and the others sectional, as clearly shown in fig. 2 of the drawing. These rollers have their bearings in the frame which supports the platform D, or in suitable lugs secured to said platform, and the ordinary feed roller is so arranged that the same will feed three rollers, and that when the sectional roller is not wanted it can be removed and replaced by an ordinary roller. The feed rollers may or may not be attached to ink fountains in the ordinary way. The sections of the sectional feed roller are adjusted to their axle, and they are held at the desired distance apart by sleeves or washers interposed between them, or in any other suitable manner. The feed rollers transfer the ink to the inking-in rollers G G' H, the axles of which have their bearings in suitable boxes, which rise and fall in the carriage A, and which can be depressed by weights or springs. The rollers G are of the ordinary kind, but the roller H is made in sections similar to the sectional feed rollers E, and its sections are adjusted to correspond to the sections of said feed roller. The rails C are supported by springs *g* at those ends next the feed rollers E F, so that the ordinary inking-in rollers may clear the chromatic feed rollers while passing over the same, and yet be near a level with the main feed roller. When the carriage has arrived at the end of the track its weight depresses the springs *g*, and the inking-in rollers G H rest on the feed rollers to receive from them the required quantity of ink. At the same time the trip-lever *e* is released as previously explained, so that the wetting roller descends, and in pushing the carriage over the stone the ink is transferred to the surface thereof as desired. A suitable latch may be applied to retain the carriage over the feed rollers for a suitable length of time.

The chromatic sectional roller which I have described is applicable not only to lithographic presses, but it can be used for color printing of any kind. By its action the shade produced on the printed surface can be varied at pleasure, and a great saving in ink and in time is effected.

The object of the sectional roller is, first, to produce an effect in lithographic printing usually effected by what is technically termed "forcing," or, in other words, some parts of a drawing have to be printed stronger

or darker than other portions, which I accomplish by arranging one or more sections of my roller in size and position on the axle, so as to pass over those parts which are to be darker or stronger, and by using deeper or brighter color, or more body of the same color as on the general rollers G G. Or, second, it may be used for the reverse, viz, to soften by taking off ink where that effect is desired; in that case no ink is used, but on the contrary the section is cleaned as occasion requires. Third, two or more inks or colors may be printed at once. The general tint being, say blue, is done by the large rollers; for instance, if the subject is a landscape view, with lettering at top or bottom, or both, we have first the general tint or sky tint; then a section in, say, buff or light grey passes over the foreground and horizon, then one or more sections with the desired color for the lettering at top or bottom, or both, as the case may be. Fourth, there is its purely chromatic character without the general rollers. We have, say, six lines of lettering; the sections may be so arranged as to print each line a different color, (six colors at once.) Then, fifth, by using all sectional, instead of the general rollers, a very peculiar and beautiful ground or tint may be produced. Sixth, another purpose is that of making a roller any desired length, and for its better adaptation to uneven surfaces than one continuous roller of great length would be, and as an auxiliary device where a large roller is used on an uneven surface, or where the large roller is uneven or does not adapt itself to the stone to bring up that part that is light or missed, as, for instance, in very large maps.

The general operation of the machine is as follows: Assuming the stone to be in its proper position on the bed of the press, the rollers being charged, the wetting rollers with water by filling them full, and the inking rollers by contact with a revolving cylinder called a feed or distributing roller, said inking and wetting rollers are set or adjusted to the thickness of the stone, so that they have the desired pressure on the stone, for which purpose the boxes are made especially heavy. If the weight of the roller and boxes is insufficient, pressure may be increased by adding weight, as shown by the oblong box z, which rests on the hand-wheel or set-nut. The two holes in the boxes are to facilitate the setting of the rollers, which are instantly removed by taking out the slide that keeps the boxes in place. The carriage is then moved forward over the stone, when the wetting rollers render the surface of the stone damp to prevent the ink from adhering to any other part than the work. Their work being done, (once crossing with two or twice with one being generally sufficient,) they are raised as previously explained. The machine is then worked back and forth as many times as is required without rechanging, except on occasions. The paper is then laid on, and the usual motions of the lithographic press gone through with. After the impression is removed the same operation is repeated.

The operation of lithographic printing on the hand press is as follows: The stone is damped or made slightly wet on the surface with a sponge. The printer, with a roller say twelve or thirteen inches long, rolls on the surface as long as he judges proper. If the stone is large, or even medium, it will take perhaps twenty motions to ink it. With a triplication of rollers in their length and numbers we accomplish the same with two or three motions, which is the object of my machine. The paper is laid on, the tympan put down; the bed with the stone on is moved under the scraper; the pressure is then put on, and the bed is drawn through by a roller turned by a crank; the pressure is then removed, the bed brought back, the tympan lifted, and the impression taken off.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The movable carriage A, containing a wetting roller *a*, and inking-in rollers G H, in combination with the trip-lever *e*, dog *f*, cam *f'*, and feed rollers E, constructed and operating substantially as and for the purpose described.

2. The springs *g*, under the ends of the rails C, in combination with the carriage A, containing the inking-in rollers G H, and with the feed rollers E F, constructed and operating substantially as and for the purpose set forth.

GEORGE DUNLOP.

Witnesses:

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