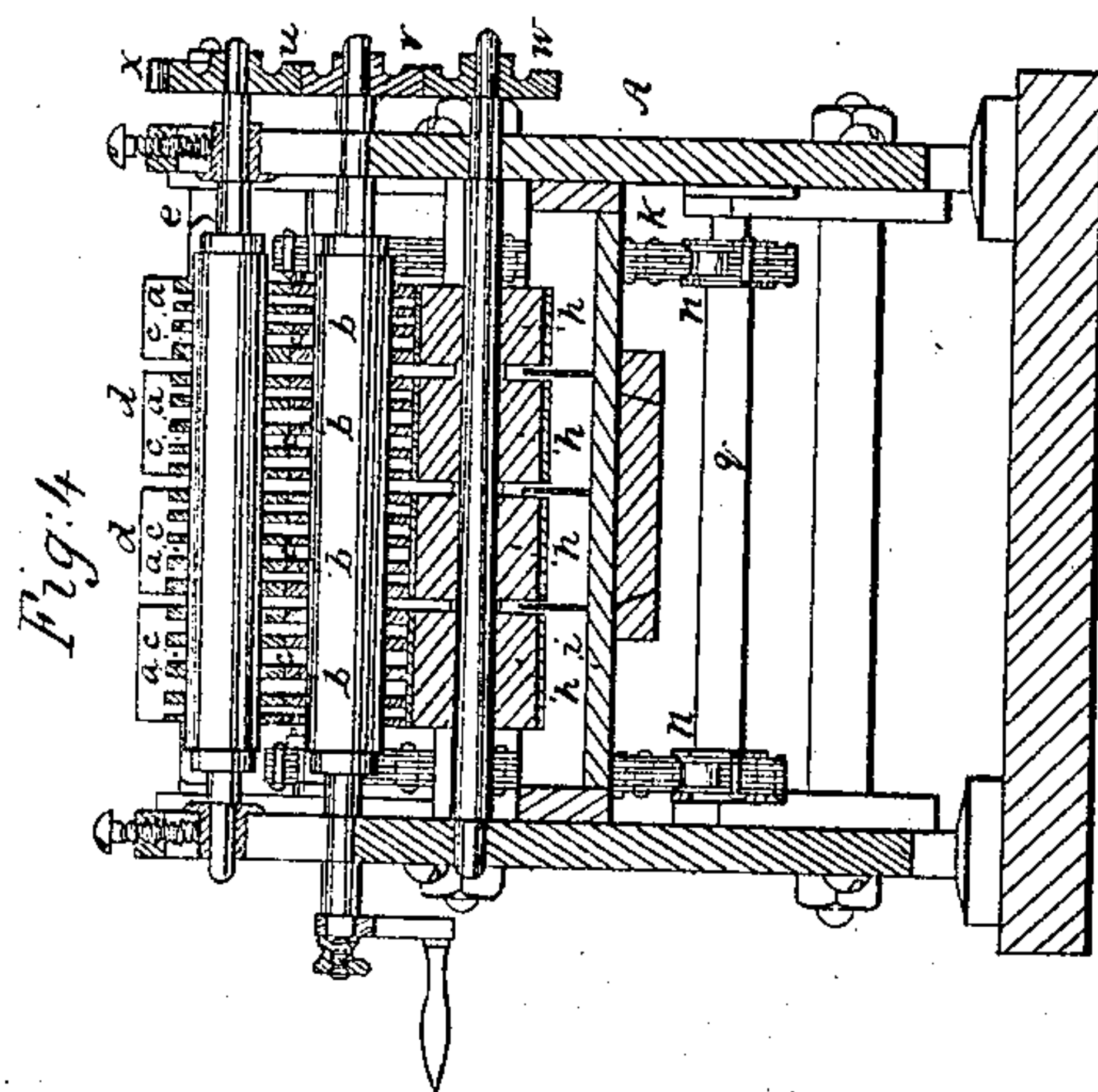
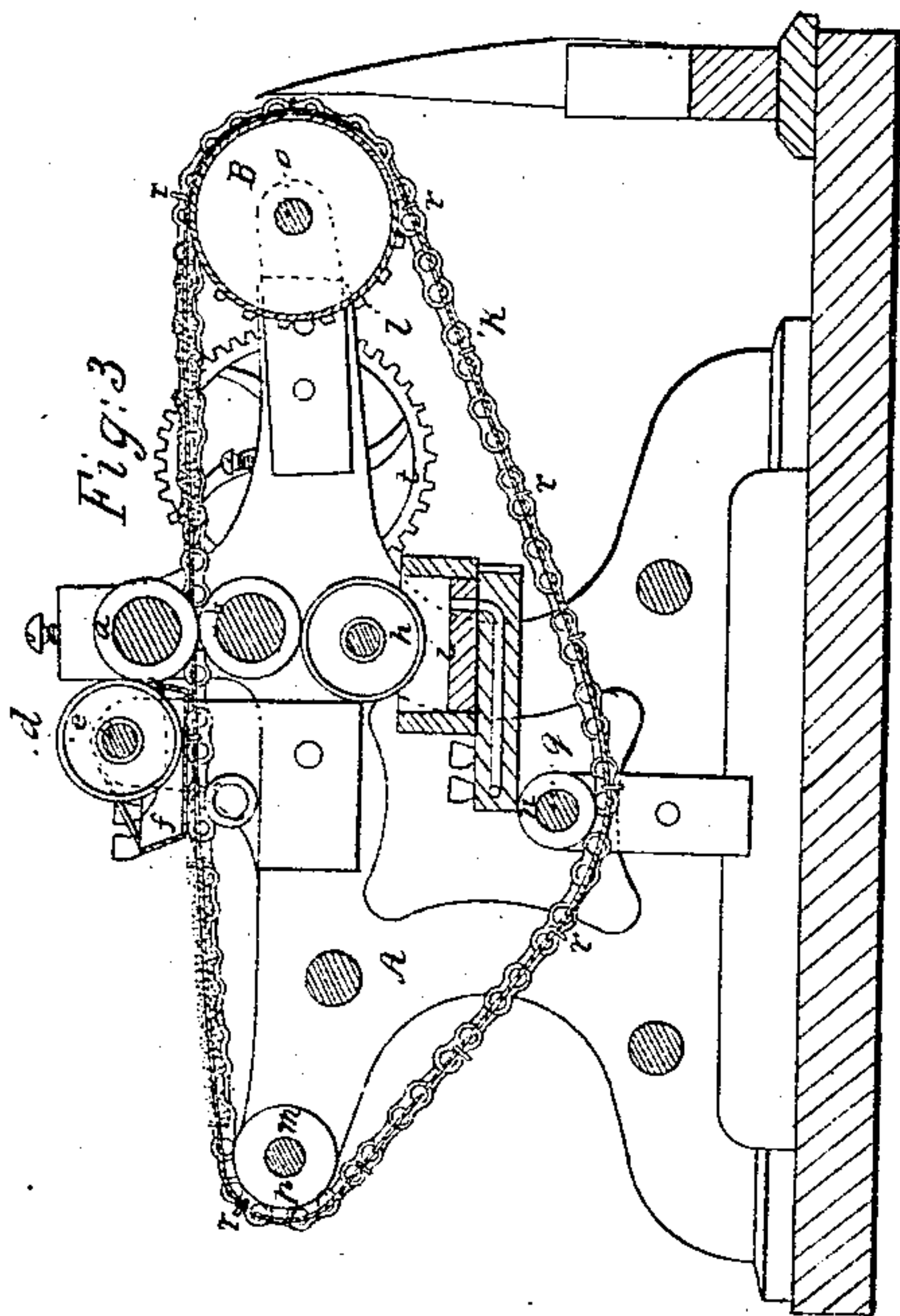
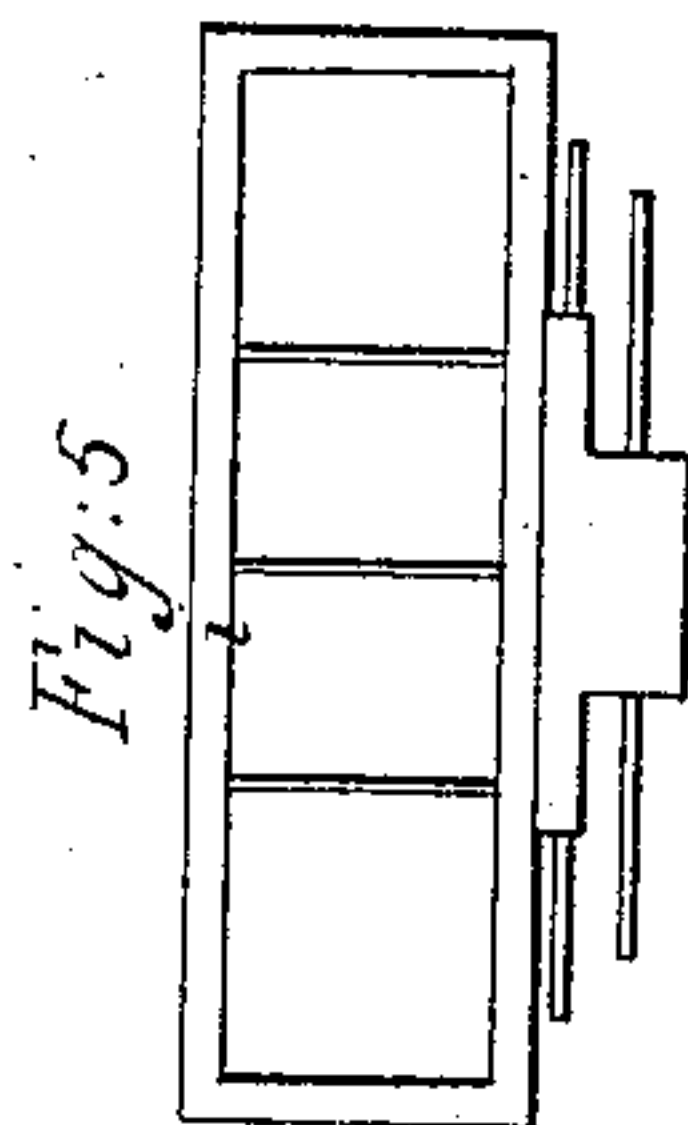
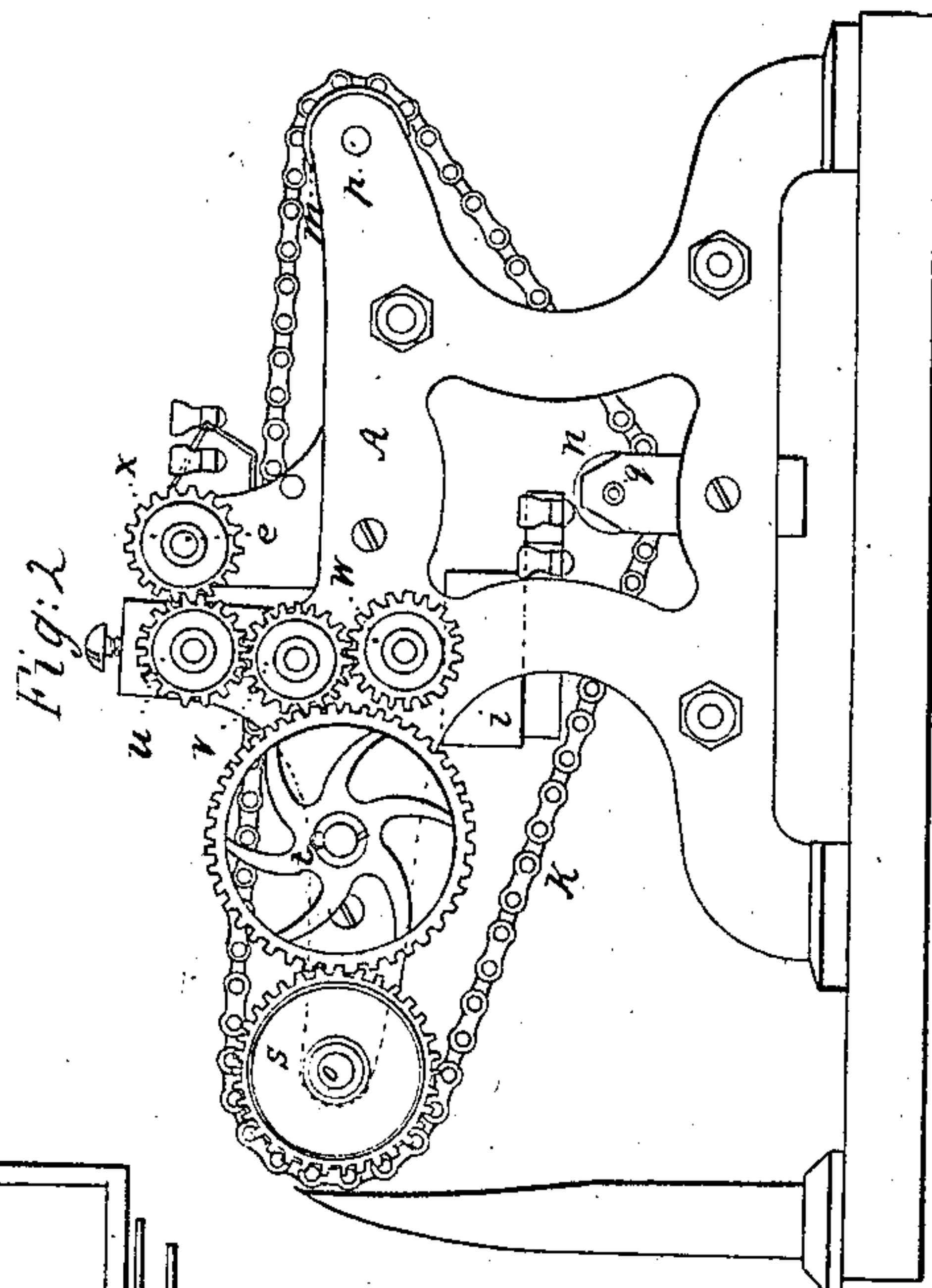
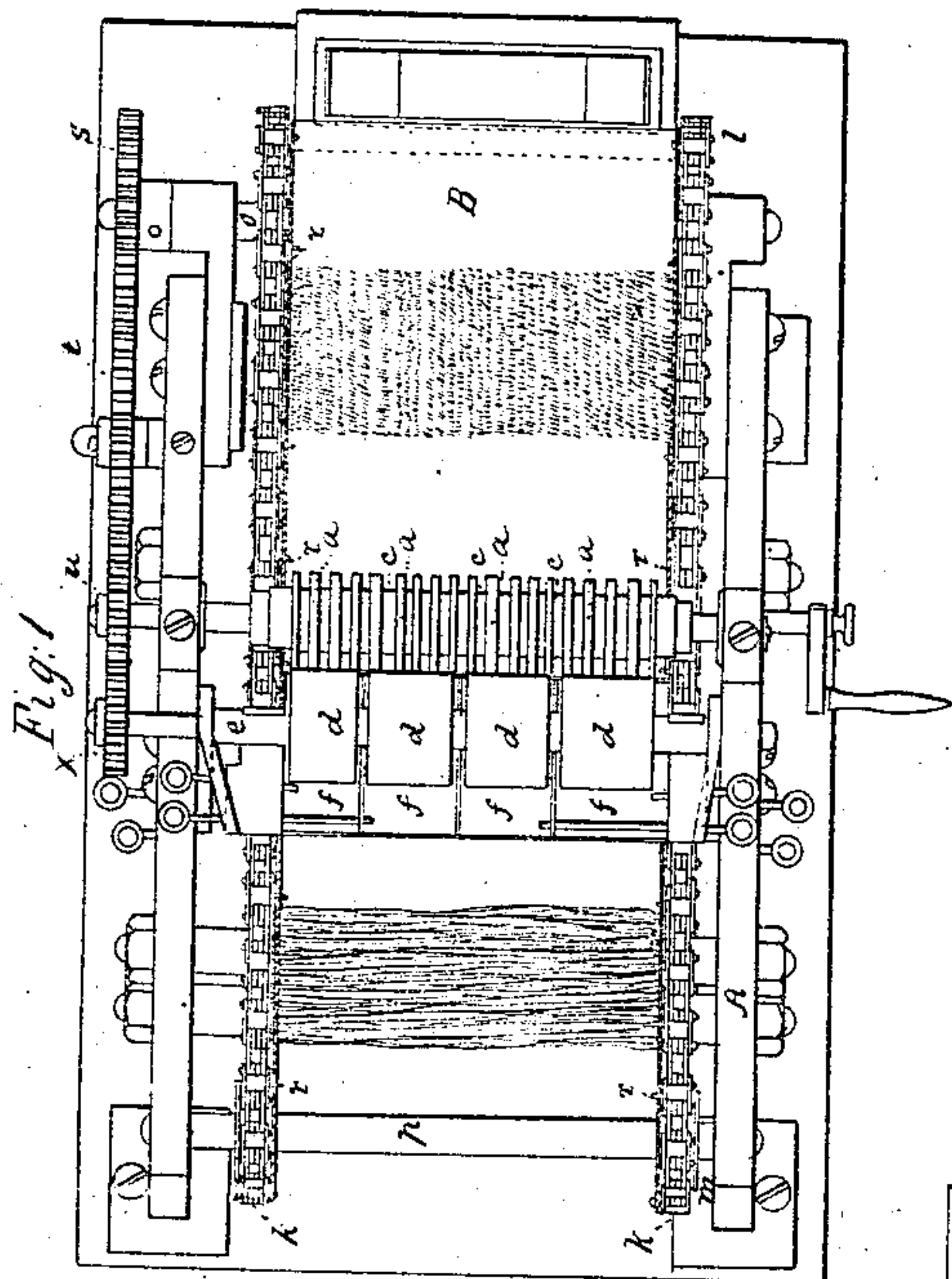


J. FOREST.
MACHINERY FOR PRINTING YARN.

No. 75,259.

Patented Mar. 10, 1868.



United States Patent Office.

JOHN FORREST, OF LAWRENCE, MASSACHUSETTS, ASSIGNOR TO HIMSELF,
JOHN ARCHIBALD, AND JOHN TAYLOR, OF SAME PLACE.

Letters Patent No. 75,259, dated March 10, 1868.

IMPROVEMENT IN MACHINERY FOR PRINTING YARN.

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

TO ALL PERSONS TO WHOM THESE PRESENTS MAY COME:

Be it known that I, JOHN FORREST, of Lawrence, in the county of Essex, and State of Massachusetts, have invented a new and useful Machine for Printing Yarns or Skeins of Yarn in Various Colors; and I do hereby declare the nature of the same, and the manner in which it is to be performed, to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 is a top view,

Figure 2 a front elevation,

Figure 3 a longitudinal and vertical section, and

Figure 4 a transverse section of it.

Figure 5 is a top view of one of its partitioned color-troughs.

The nature of my invention consists in the combination, as well as in the arrangement of two carriers, two printing-rollers or series of printing-wheels, and certain rollers, and troughs for applying different colors to such rollers or printing-wheels, the said carriers being two bands or chains, or their equivalents, or two endless chains provided with a series of hooks, as hereinafter explained; the skeins of yarn to be printed, being stretched from one to the other of such carriers in lines parallel, or about so, with the axes of the printing-rollers or wheels.

In various machines heretofore used for printing yarns, the movement of the yarns while being printed has been in the direction of their lengths, and they were passed between printing-rollers, grooved lengthwise, the same allowing but one color to be applied at a time to each skein or yarn; but with my machine the motion of the skeins of yarn while going through the machine is in a direction transverse of their length, and they pass between two series of printing-wheels, the wheels of each series being arranged side by side on a common shaft or axle, and with spaces between them of widths corresponding to the lengths of those parts of the yarn to be left uncolored.

In the drawings, A denotes the frame of the machine. It has arranged within and across it, two series of printing-wheels *a a a*, &c., *b b b*, &c. The wheels of each set or series are arranged on a common horizontal shaft, concentric therewith, and with spacing annuli *c c c*, &c., between them, they being held in place on the shaft by any proper means, the whole being as represented in figs. 1 and 4. A series of color-rollers, *d d d d*, affixed at suitable distances apart on a shaft, *e*, and dipping into separate cells *f f f f* in a color-trough, *g*, is arranged alongside of and against the upper set of printing-wheels, there being another such a set of printing-rollers, *h h h h*, with their cellular trough *i*, placed underneath the lower series of printing-wheels. Two carriers or endless chains *k k*, are arranged within the frame A, and with respect to the two series of printing-wheels, in manner as shown in the drawings, each chain being supported on guide and sustaining-wheels *l m n*, arranged on shafts *o p q*, extended across and supported by the frame A, or suitable devices applied thereto. Each endless chain has a series of hooks, *r r*, extending from its inner side, such hooks being arranged at proper distances asunder. These hooks are for sustaining a cord or rope going through all the skeins, such cord being hooked on the hooks.

For applying the skeins to the machine, two of such cords are to be run through each of the skeins, and they are to be hitched on the hooks of the two endless carriers, so as to cause the skeins to extend across the machine from one corner to the other. In this state when the carriers are synchronously put in motion, the skeins will be synchronously passed between the two sets of printing-wheels, and may be printed in different colors thereby, each of the printing-wheels of one series, with its fellow or mate of the other series, being made to print one and the same color on opposite sides of the skein.

In advance of the printing-mechanism, as hereinbefore described, is a drying-drum or cylinder, B, about which the skeins are to be run in order to effect the drying of the colors. This cylinder should be hollow, and be heated by steam or other suitable means.

A train of gears, *s, t, u, v, w*, and *x*, properly applied to the shafts of the printing-wheels, color-rollers, and the drying-cylinder, and arranged in manner as represented in the drawings, serves to impart the requisite

motions to the carriers, the printing-wheels, color-rollers, and drying-drum, when the shaft of the lower series of printing-wheels is put in revolution.

With the above-described machine yarns can be printed with great rapidity and accuracy.

I claim as my invention—

The combination as well as the arrangement of the two carriers for carrying skeins of yarn, in the manner described, with one or two series of printing-wheels, composed of annular disks, their color-rollers, and cellular troughs, the whole being provided with mechanism to operate them, substantially as and for the purpose specified.

I also claim the combination of the drying-cylinder or apparatus, the two carriers as above, one or two series of printing-wheels, their color-rollers, and cellular troughs, the whole being provided with mechanism to operate them, substantially as and for the purpose specified.

JOHN FORREST.

Witnesses:

J. C. BOWKER,
OLIVER PEARL.