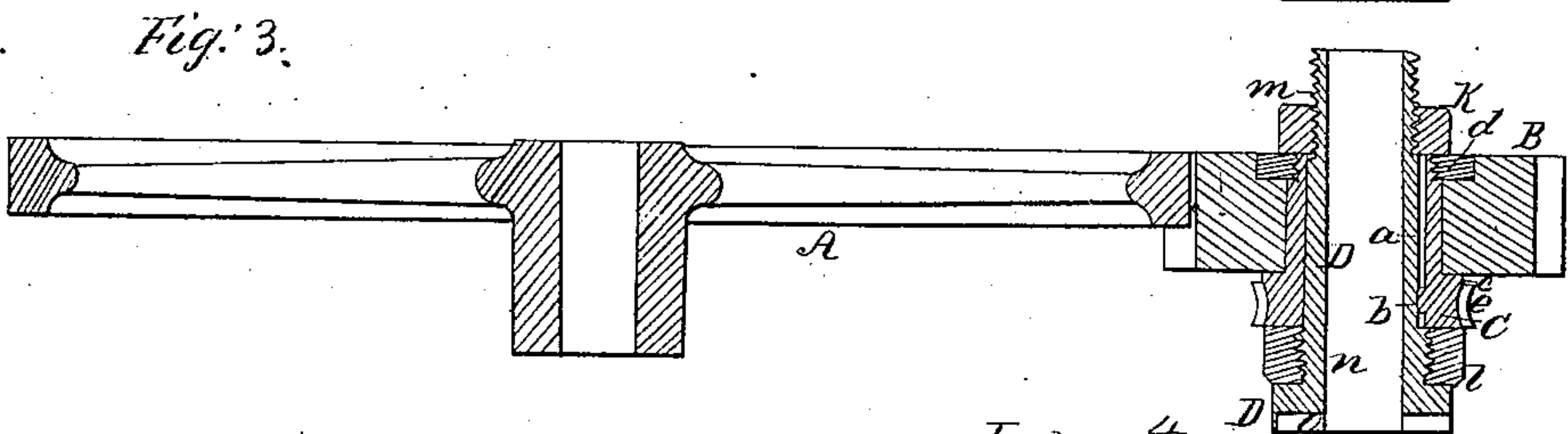
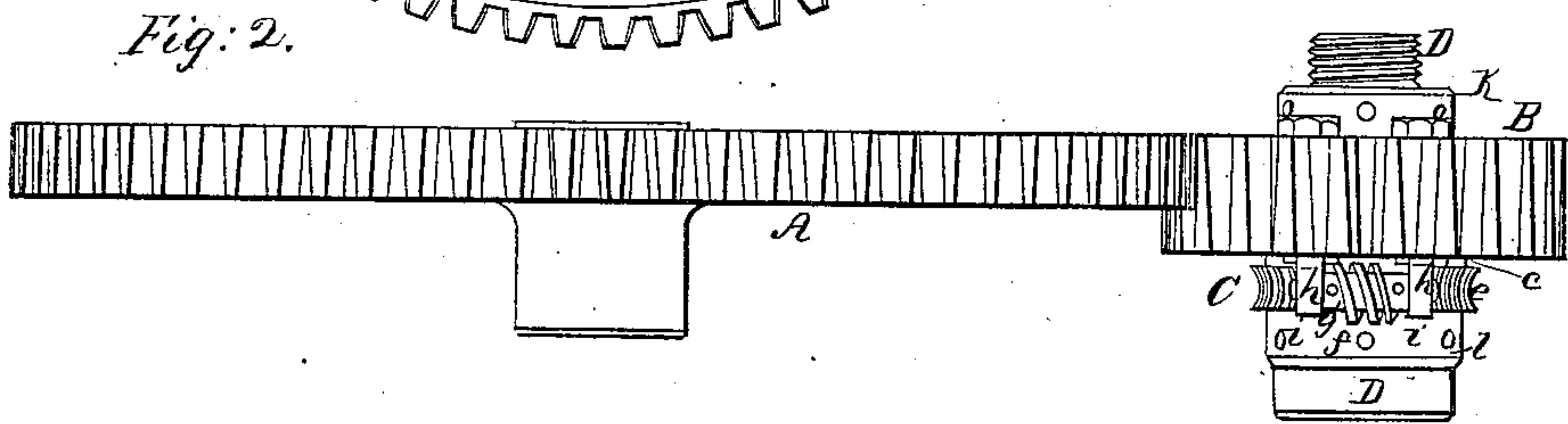
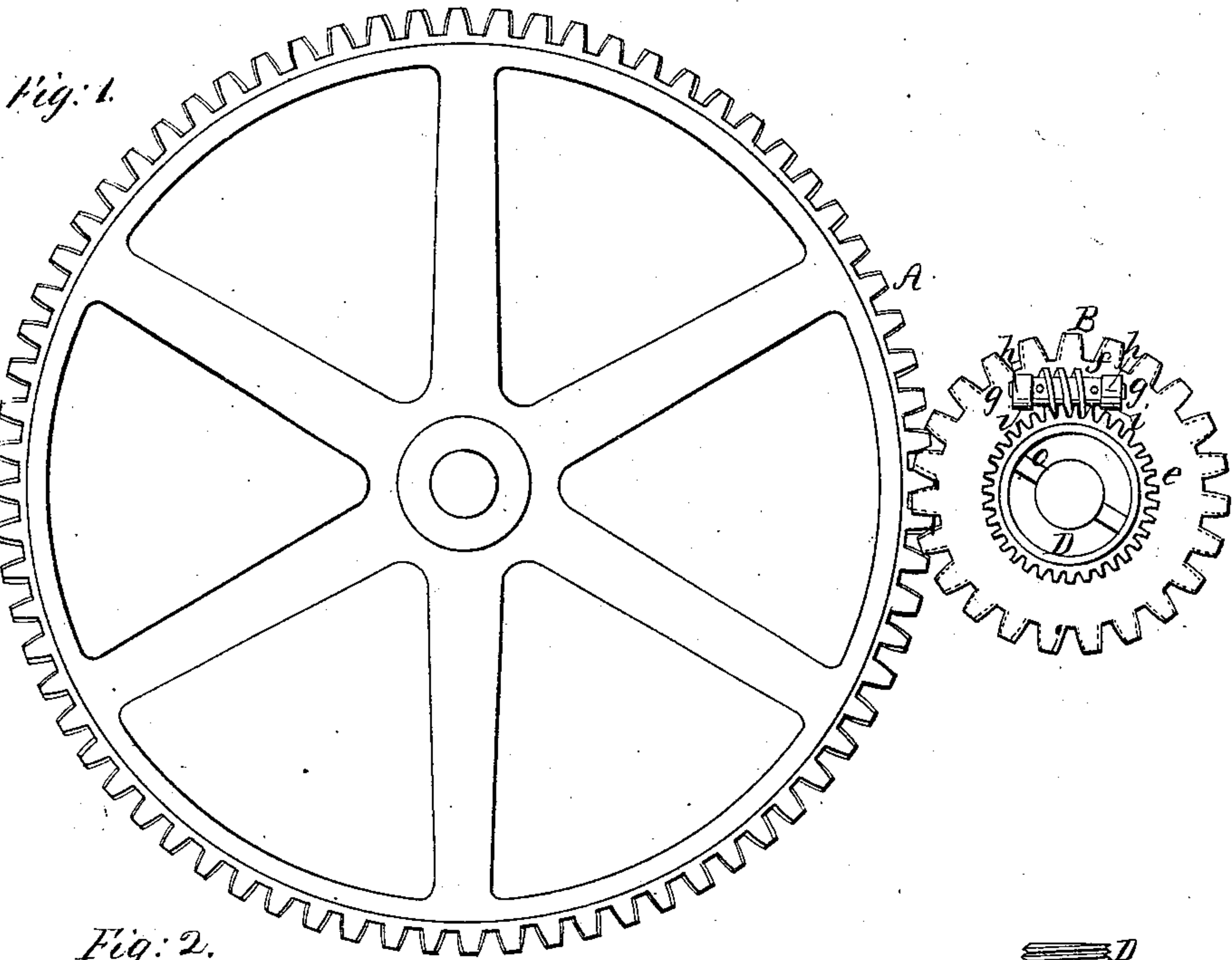


*A. Sibley,*

*Machine Gearing.*

*N<sup>o</sup> 79,605.*

*Patented July 7, 1868.*



*Witnesses;*

*J. W. Per-*  
*R. H. Brown*

*Inventor;*

*Alden Sibley*

*by his attorney*

*R. H. Eddy*

# United States Patent Office.

ALDEN SIBLEY, OF PAWTUCKET, RHODE ISLAND.

*Letters Patent No. 79,605, dated July 7, 1868.*

## IMPROVEMENT IN GEARING.

*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, ALDEN SIBLEY, of Pawtucket, in the county of Providence, and State of Rhode Island, have invented a new and useful Improvement in Gearing; and do hereby declare the same to be fully described in the following specification, and represented in the accompanying drawings, of which—

Figure 1 denotes a front elevation,

Figure 2 a top view, and

Figure 3 a transverse section of a gear and its pinion as provided with my invention.

These gears are designed for use in a calico-printing machine, provided with a series of printing-cylinders, each of which is to have placed on its axle or shaft one of the pinions, or a screw-sleeve, to receive the shaft. The gear to operate with the pinion is the main gear for operating the series.

In the drawings, A denotes such main gear, and B one of the pinions of the series, supposed to be applied to the several printing-cylinders.

The pinion is arranged on a short tubular shaft, C, which, in turn, encompasses a sleeve or tube, D, the two being connected by a "spline or feather-connection," consisting of a groove, *a*, made on the sleeve, and a stud, *b*, projecting from the shaft C into such groove.

The pinion abuts against a shoulder, *c*, made on the shaft, and is held to the shaft by an annulus, *d*, screwed on the shaft and into a corresponding recess made within one side of the pinion, the same being as shown in the drawings.

A worm-gear, *e*, fixed on the shaft C, engages with an endless screw or worm, *f*, whose shaft, *g*, is supported in bearings *h h*, projecting from one side of the pinion. Such shaft has small holes, *i i*, made diametrically through it, such being to receive a pin or lever, to enable a person to revolve the shaft and its worm, so as to turn the pinion on the shaft C, as occasion may require.

The shaft C is to freely slide endwise on the sleeve D, and is rendered capable of being so moved or adjusted and fixed in place by two annular nuts, *k l*, arranged at opposite extremes of the shaft, and screwed on screws *m n*, formed on and around the sleeve.

The purpose of the adjusting-screws and nuts last described is to move or adjust the pinion laterally with respect to the gear. Each tooth of the pinion and gear I form tapering lengthwise, in manner as represented, the same being to enable me, as the teeth may wear, to prevent what is termed "backlash," the same being accomplished by moving the pinion toward the gear until the teeth of one may fit closely into the spaces between the teeth of the other, while the gear and pinion may be in revolution.

It is very important that no "backlash" should take place, for in case it does the figures of the cylinder of the pinion will not print the cloth in their proper places with reference to other figures printed on it by other cylinders of the machine.

The adjustment of the pinion by an endless screw and the worm-gear, as hereinbefore explained, is for the purpose of bringing a figure of the printing-cylinder of the pinion into its proper position, with reference to any one or more of those of the other cylinders of the machine.

The sleeve D has a groove, *o*, made transversely across its front end, such being to receive a key to go through the shaft of a cylinder, and hold the sleeve on such shaft; but instead of employing the sleeve (which admits of the pinion being applied to the shaft of any cylinder, provided such shaft will fit into the sleeve,) the shaft C may be arranged directly on the shaft of a cylinder, and such shaft has a screw or screws cut on it to receive the adjusting-screw nuts or annuli *k l*, the shaft C being, in such case, connected with the cylinder-shaft by a spline or "feather-connection."

What I claim as my invention, in the above-described mechanism, is as follows:

I claim the pinion B and its gear A, as made with tapering teeth, as described, in combination with the pinion and its cylinder-shaft, and means by which the pinion may be moved and adjusted lengthwise of the said shaft, and with respect to the fellow-gear A, as and for the purpose of preventing "backlash," as specified.



I also claim the arrangement and combination of the endless screw *f* and the worm-gear *e* with the pinion *B* and its shaft.

I also claim the combination of the sleeve *D* with the pinion *B*, and the adjusting-screw or screws *m n* and nuts *k l* thereof, for moving said pinion longitudinally of the sleeve, as set forth.

I also claim the combination and arrangement of the pinion *B*, the shaft *C*, the sleeve *D*, the adjusting-screws *m n*, and nuts *k l*, and the worm *f* and its gear *e*, the whole being substantially as described.

Witnesses:

R. H. EDDY,  
F. P. HALE, Jr.

ALDEN SIBLEY.