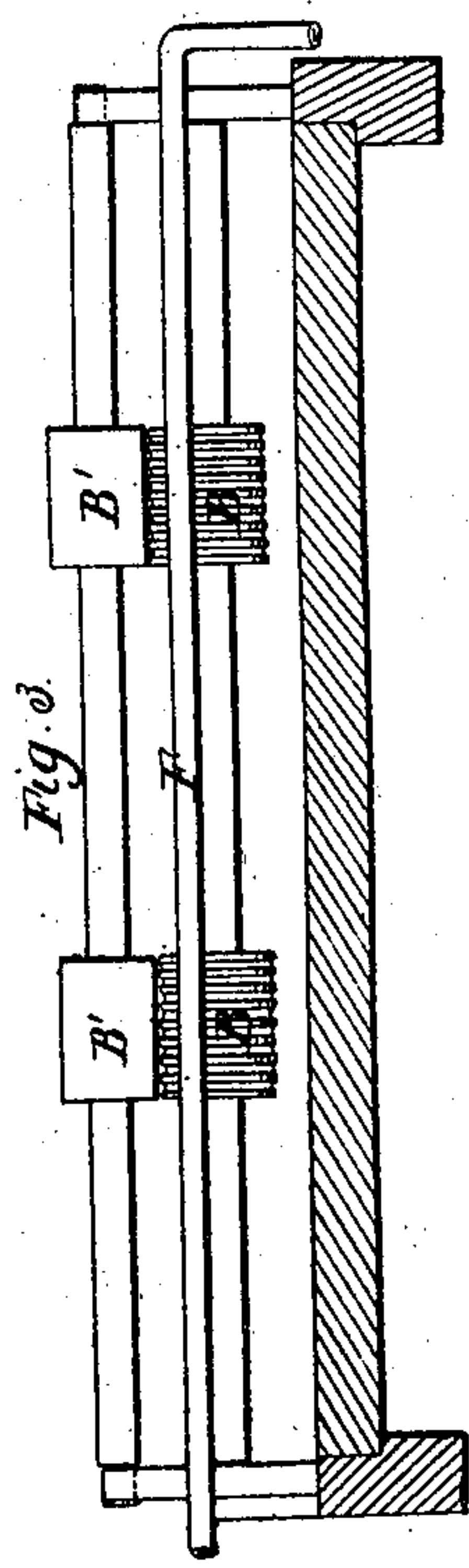
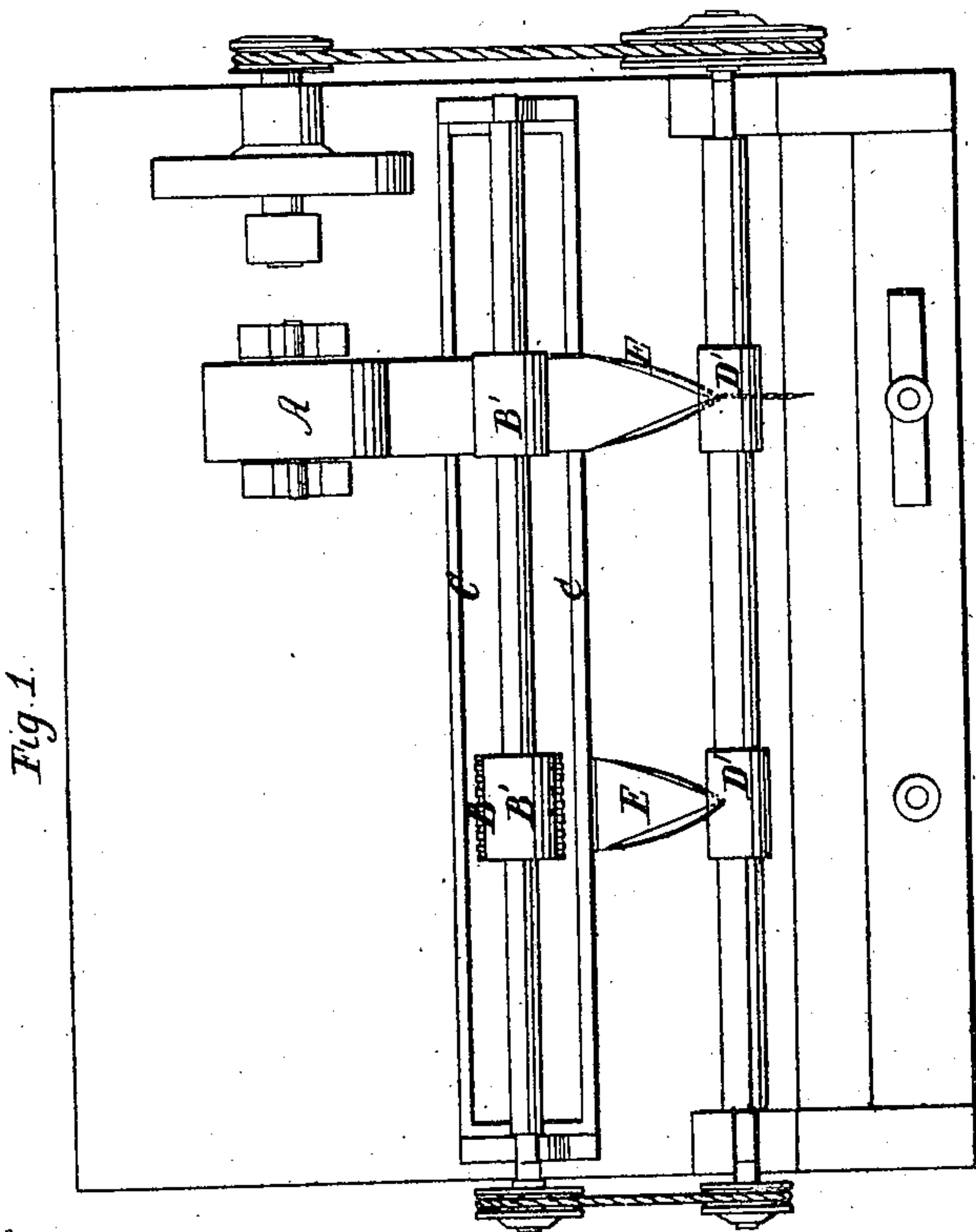
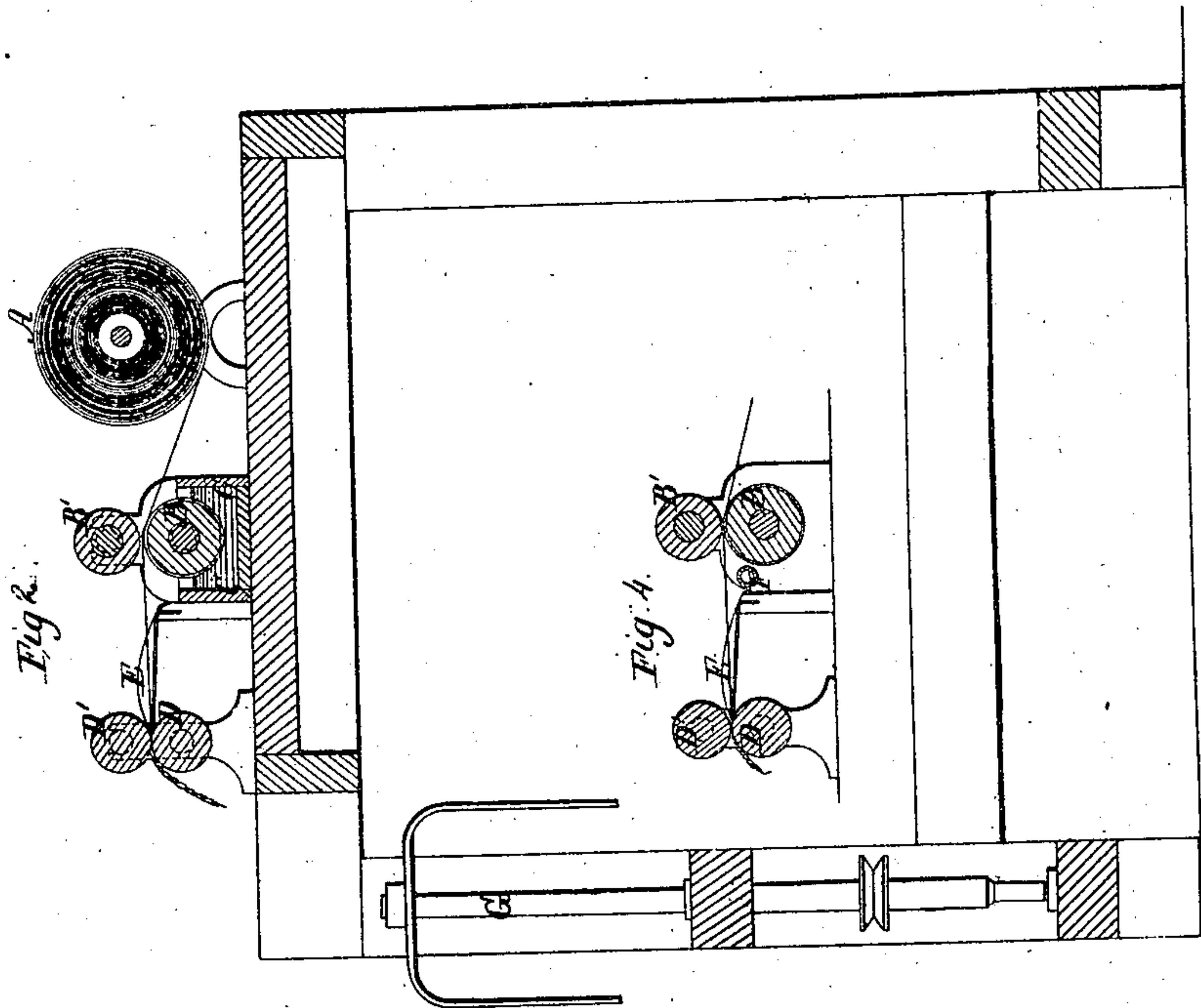


*J.B. Wortendyke.*  
*Mach. for Making Paper Twine.*  
*No. 42,896. Patented May 24, 1864.*



Witnesses  
*J. P. Hall*  
*Wm. L. Loring*

Inventor  
*John B. Wortendyke*



# UNITED STATES PATENT OFFICE.

JOHN B. WORTENDYKE, OF GOODWINVILLE, NEW JERSEY

## IMPROVEMENT IN MACHINES FOR MAKING PAPER TWINE, &c.

Specification forming part of Letters Patent No. 42,896, dated May 24, 1864.

*To all whom it may concern:*

Be it known that I, JOHN B. WORTENDYKE, of Goodwinville, in the county of Bergen and State of New Jersey, have invented a new and useful Improvement in the Manufacture of Paper Twine or Cord; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable any person 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 is a plan of a machine for making paper twine illustrating my invention. Fig. 2 is a transverse vertical section of the same. Fig. 3 is a front view illustrating a modification of the machinery employed in carrying out my invention. Fig. 4 is a transverse vertical section corresponding with Fig. 3.

Similar letters of reference indicate corresponding parts in both figures.

The object of this invention is to effect the manufacture of twine of good quality from machinery substantially like that employed in spinning cotton and other fibrous materials, consisting mainly of pressure-rollers arranged substantially like the drawing-rollers of spinning-frames, and a throstle or spindle, applied and operating substantially like those of such frames. The paper is cut into a strip of proper width to form the twine, and of as great length as possible, and placed on a roll, whence it is taken by the aforesaid pressure-rollers.

In order to enable the strip to be well spun, it is moistened and afterward gathered up laterally into the form of roping, during its passage to or between the pressure-rollers, and it is in this moistening and lateral gathering up of the strip while it is on its way to the throstle or spindle that my invention consists.

A is the roll from which the strip of paper is supplied, arranged behind the back pair of pressure rolls, B B', in bearings in which it is free to turn freely, to allow the strip to be drawn off as fast as required by means of the said pressure rollers. These pressure-rollers may be of wood or other material, and the necessary pressure of the top roller, B', may be obtained by any suitable system of loading. The lower roller, B, (represented in Figs. 1 and 2,) has arranged below it a trough or box, C, containing water, in which its lower

part rotates for the purpose of taking up a sufficient quantity for moistening the paper as it passes between the said roller and the upper roller, B'. To enable the said roller B to take up a larger quantity of water and apply the same to the paper in a better manner than if it had a perfectly even surface, it is grooved circumferentially at short intervals.

Figs. 3 and 4 represent a perforated or finely-slit steam-pipe as a substitute for the trough C, the said pipe being arranged as close as practicable in front of the rollers B B', and in such a manner as to deliver the steam directly upon the under surface of the strip of paper, and thereby moisten it as it emerges from between the said rollers.

Between the back pressure-rollers, B B', and the front ones, D D', there is arranged a taper spout-like guide, E, of tin-plate or other metal or material, through which the strip of paper (represented in yellow color) has to pass on its way from one pair of rollers to the other. The entrance of this guide is of a width not less than the full width of the strip of paper of which the twine is to be made; but its outlet, which is brought as far as possible into the entrance between the rollers D D', is very narrow, its width being in fact little, if any, greater than the thickness of the twine to be produced. The moistened strip, in being drawn through this, is gathered up laterally into the form of a roping, ready to be twisted by the throstle or spindle G, after it has been delivered through the rollers D D'. A trumpet or funnel shaped passage may be substituted for the spout-like guide E, and will have the same effect. The pressure-rollers B B' and D D' are or may be driven in the same manner as the back and front drawing-rollers of spinning-frames for spinning cotton and other fibrous substances, except that the front pressure-rollers do not require to have any higher velocity, as no draft is intended to be produced. By the moistening of the paper on its way to the throstle or spindle by which it is spun into twine, it is softened and so enabled to be easily gathered up laterally into the form of roping, and to be easily spun and retain its twist after being spun. By gathering up the strip laterally into the form of roping, it is enabled to be much better twisted. The moistening of the paper sufficiently with perfect uniformity can only be effected while

it is on its way from the roll A or its equivalent to the throstle or spindle, for if moistened while or before being placed on the roll it is not possible to deliver the whole length of a piece at a uniform dampness. The twine thus produced is very uniform and smooth, and may be used as strands for cord.

What I claim as my improvement in the manufacture of paper twine, and desire to secure by Letters Patent, is—

1. The moistening of the strip of paper of which the twine is to be formed while on its way to or between the rollers by which it is delivered to the spindle or throstle by which

the twisting is performed, substantially as herein described.

2. The employment, in combination with means of moistening the strip of paper on its way to the spindle or throstle, of a guide, E, or other equivalent device, for gathering up the moistened strip edgewise or laterally into the form of roping, substantially as herein specified.

JOHN B. WORTENDYKE.

Witnesses:

GILBERT W. BAUKER,  
JAMES P. HALL.