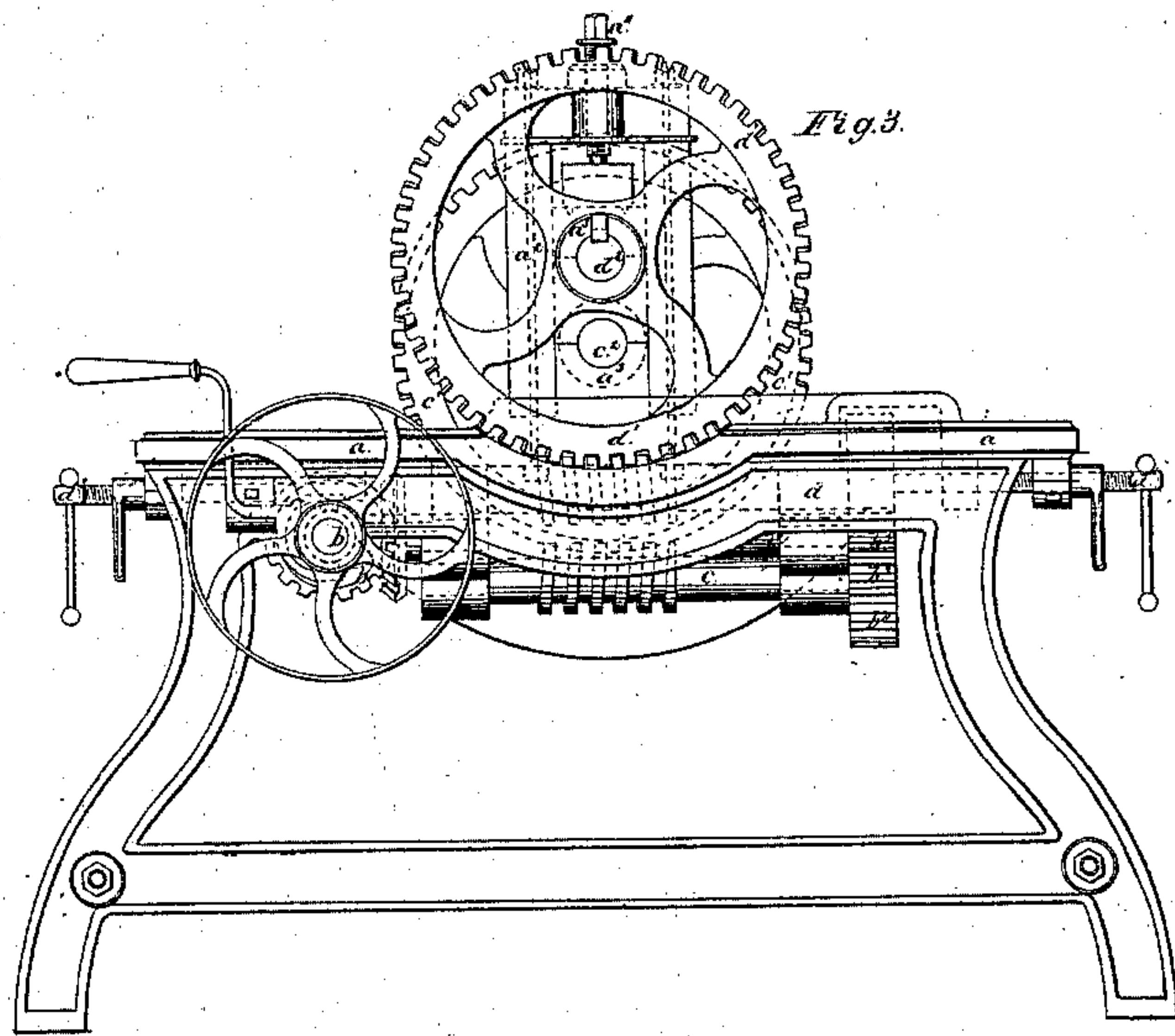
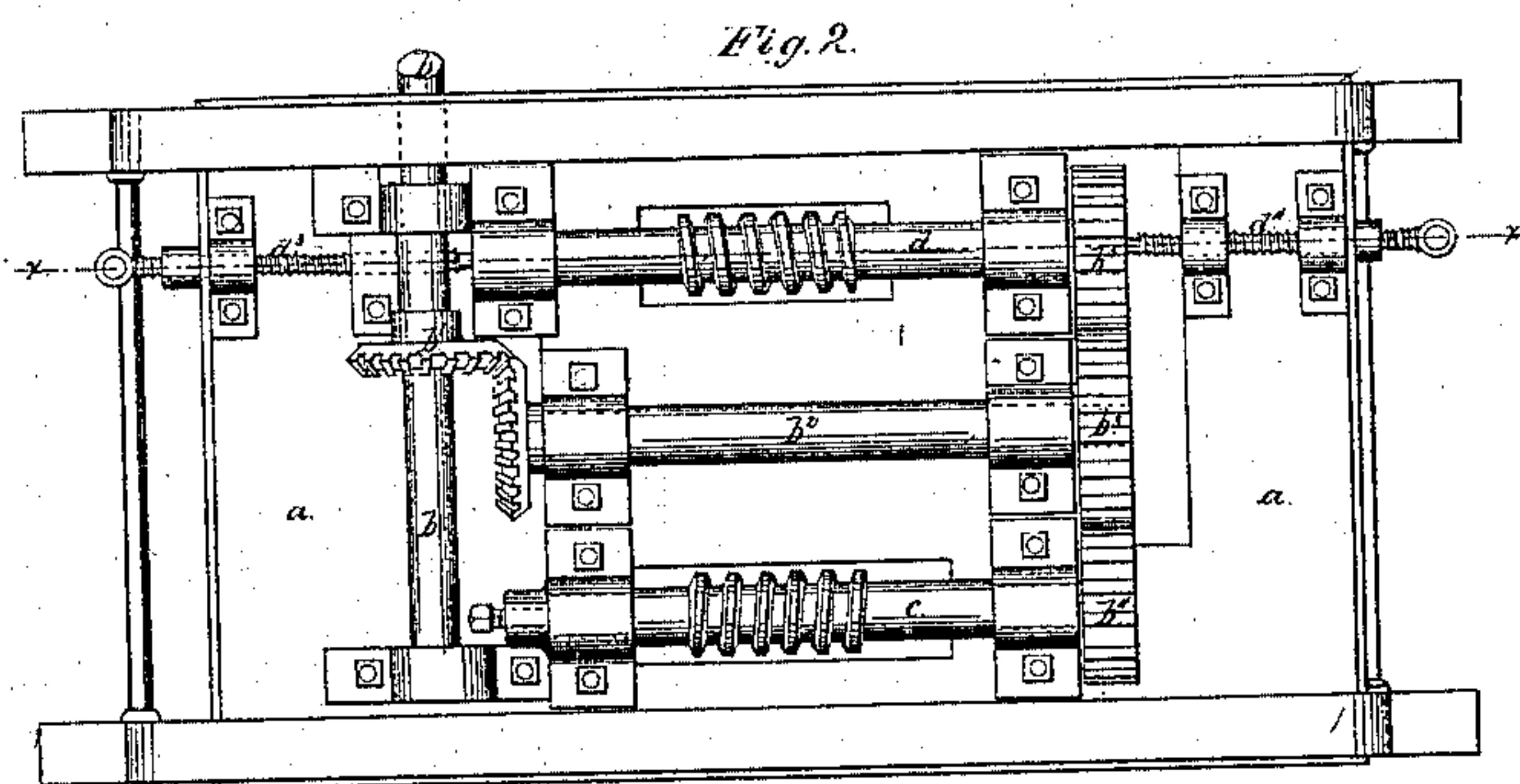
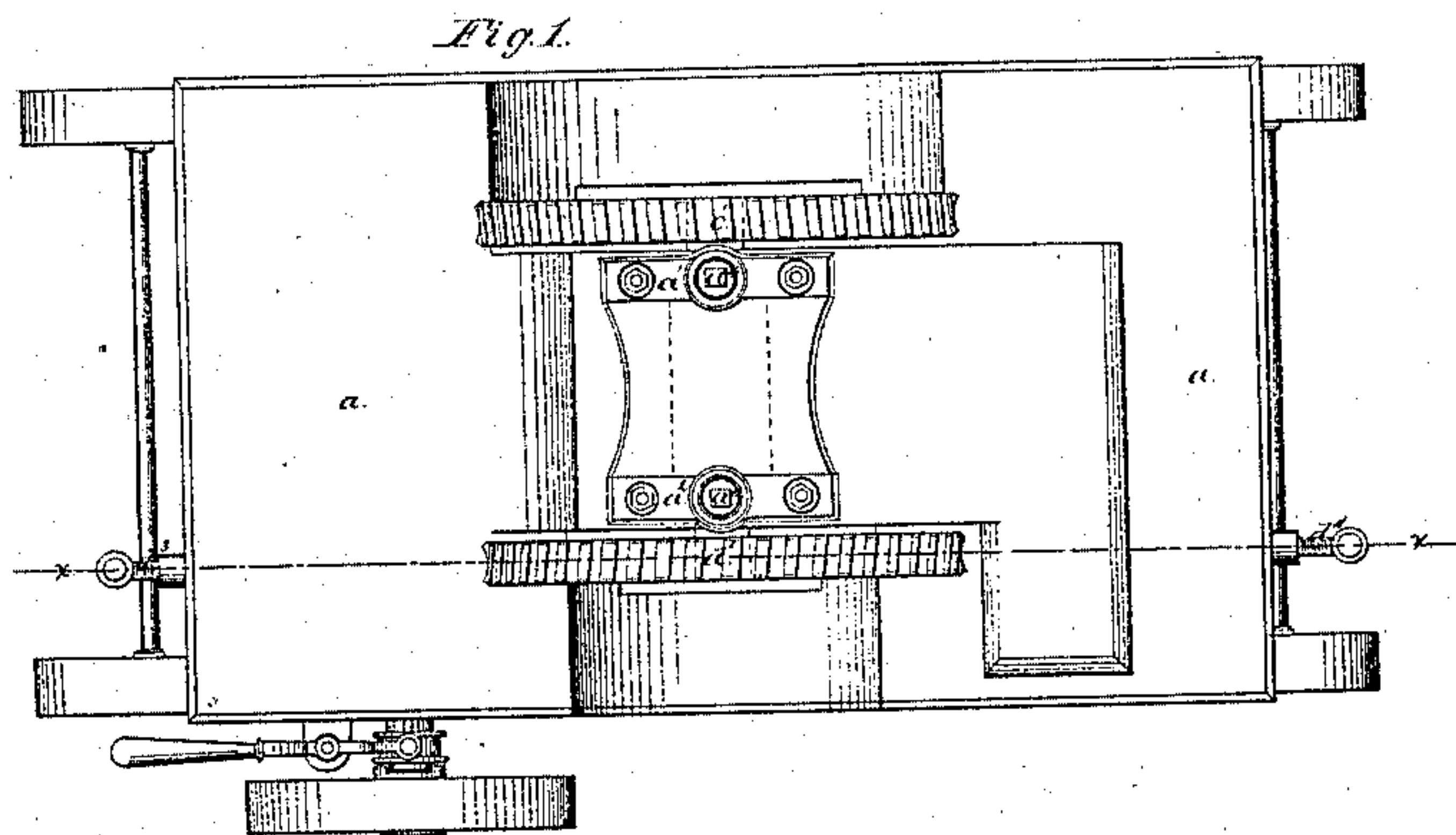


G. W. WICKS.  
ROLLER DIE.

No. 48,472.

Patented June 27, 1865.



Witnesses.  
Charles C. West  
L. P. Allen

Inventor.  
G. W. Wicks.

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Fig. 4.

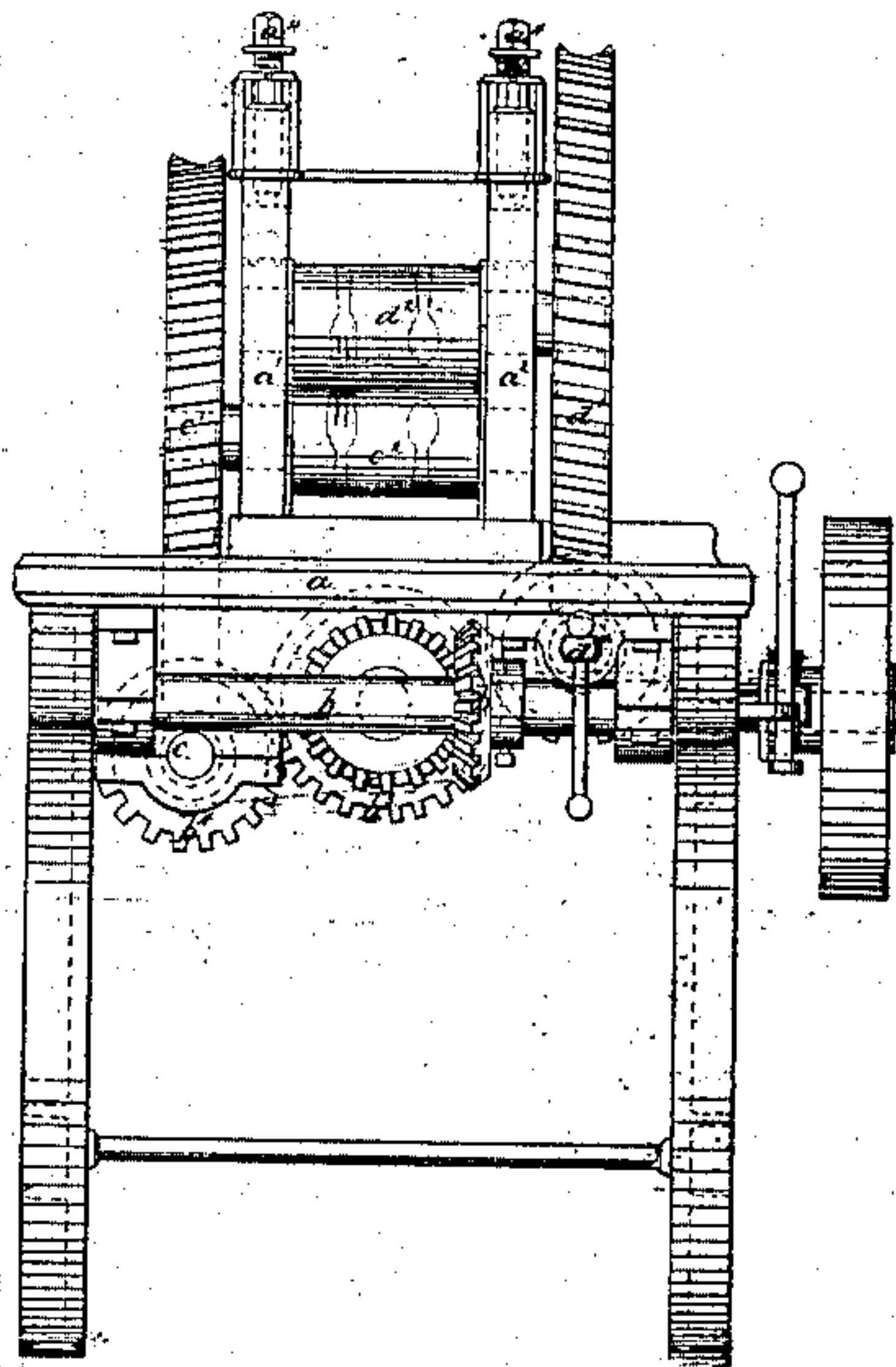


Fig. 5.

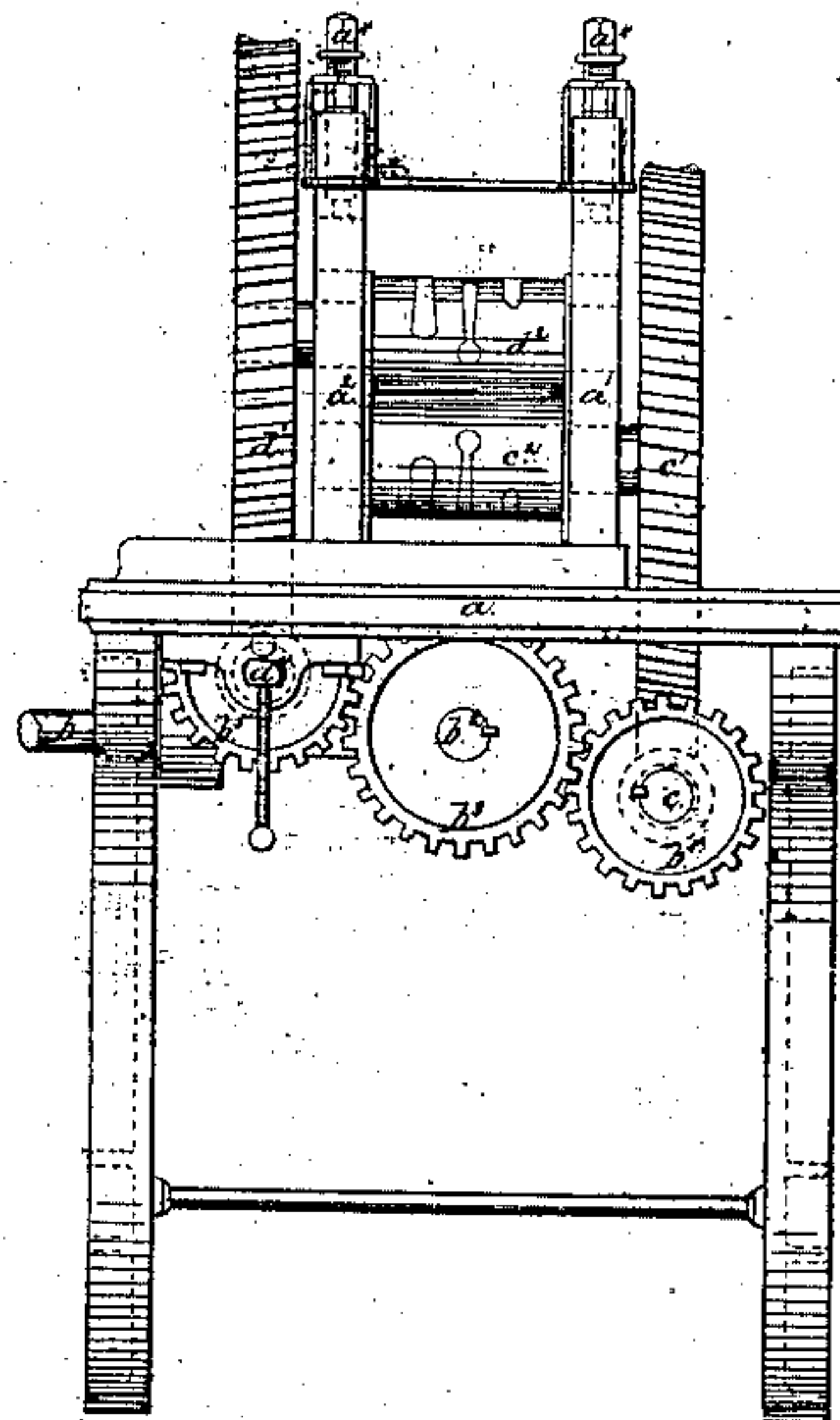
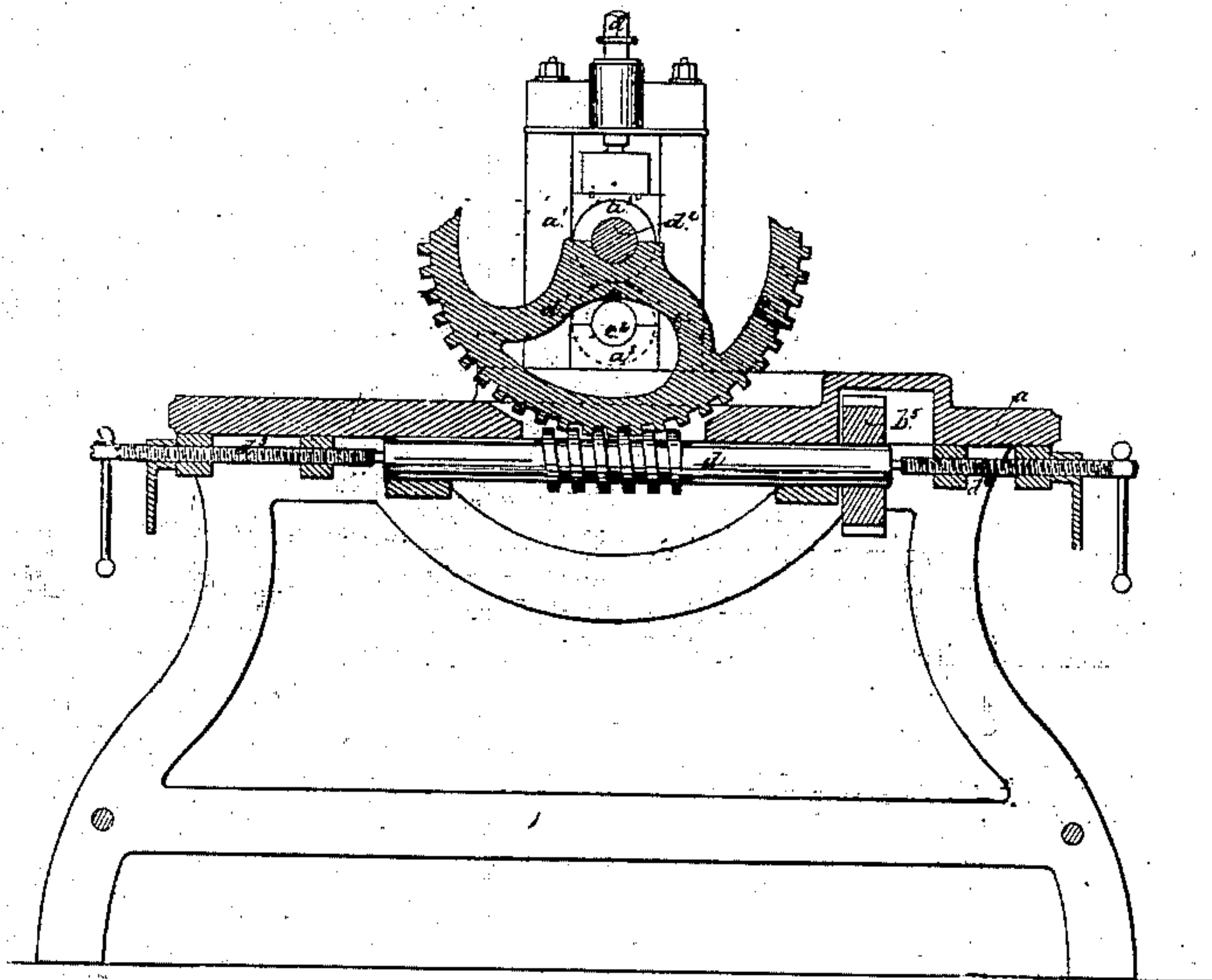


Fig. 6.



Witnesses.

Charles C. Wicks  
S. Wicks

Inventor.

G. W. Wicks



# UNITED STATES PATENT OFFICE.

GEORGE W. WICKS, OF BROOKLYN, NEW YORK.

## IMPROVEMENT IN ROLLER-DIES.

Specification forming part of Letters Patent No. 48,472, dated June 27, 1865.

*To all whom it may concern:*

Be it known that I, GEORGE W. WICKS, of Brooklyn, Kings county, State of New York, have invented a new and useful Improvement in Rolling-Mills; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, making a part of this specification.

My improved rolling-mill for the use of silversmiths and others is distinguished from similar machines which have preceded it in the important particular that motion is imparted to the rolls by the use of worm-gear, the advantages of which I shall presently set forth.

An incidental peculiarity of my machine, arising from the use of worm-gear, is a very delicate and exact mode of adjusting or regulating the rolls in the exact relation to each other necessary to produce a perfect result in rolling a blank which is to be impressed with a device on both its sides.

Silversmiths' rolls as constructed previous to the date of my invention have been made to revolve by the action of ordinary spur-wheels, and notwithstanding the exertion of the utmost care and skill in forming the teeth or cogs upon these wheels the practical result in using them has been an unsteady or slightly intermittent motion, the effect of which is shown upon the object passed through the rolls by the production upon it of waving or undulating surfaces. It has therefore been necessary to shave or polish off these irregularities, which cannot be done without in many cases injuring the device impressed upon the metal.

With this explanation of the difficulties and imperfections characterizing this branch of manufacture the advantages of worm-gear for imparting motion to the rolls are rendered self-evident, for it will be at once understood that the motion thus obtained is smooth and undeviating, and in practice it will be found that a strip of metal—a spoon-blank, for example—will come through my rolls straight and flat, while it cannot be passed through rolls of ordinary construction without being bent and curved in several directions. The necessity for shaving the surface is thus substantially

avoided, and the beauty of the device or pattern remains unimpaired.

A full set of working drawings accompanies this specification, embracing six views of a convenient mode of applying the principles of my invention to a machine for the purpose set forth.

Figure 1 is a top view; Fig. 2, a view of the under side; Fig. 3, a side elevation; Figs. 4 and 5, end views; and Fig. 6, a vertical plane section through line *x x*, Figs. 1 and 2.

Similar letters of reference indicate corresponding parts in all the drawings.

I construct and mount my rolls in the usual way, upon a bench, *a*, having two uprights, *a'* and *a''*, with the ordinary sliding boxes, *a'''*, held in place by the set-screws *a''''*. The driving-shaft *b* carries the miter-gear *b'*, this imparting motion to the counter-shaft *b''*, which is provided with a pinion, *b'''*, meshing into the wheels *b''''* and *b''''''* upon the end of the worm-shafts *c* and *d*. The thread upon the shaft *c* meshes into the worm-pinion *C'* on the shaft of the lower roll, *c''*, while the thread upon the shaft *d* meshes into the worm-pinion *d'* on shaft of the upper roll, *d''*. The shaft *d* is movable endwise, and its position is regulated by the set-screws *d'''* and *d''''*, by which means the upper roll, *d''*, is susceptible of the utmost nicety of adjustment—a feature of which, as will be obvious, is entirely wanting in the case of rolls operated by spur-gear.

It is to be observed that the interposition of the counter-shaft *b''* makes it necessary to cut the threads upon the worm-shafts in opposite directions, in order to communicate the proper direction to the rolls, which would otherwise, of course, both rotate the same way.

Doubtless other modes of applying the principles of my invention will readily suggest themselves, and I desire to say that I have adopted this particular plan merely as a matter of convenience in a working machine which I have recently built, but do not confine myself to it in all particulars. In cases where very delicate and elaborate figures or devices are engraved upon the rolls I have thought it may possibly be found useful, by way of obtaining still more smooth and perfect motion, to rotate the shafts *c* and *d* by means of worm-gear upon the driving-shaft *b*, setting that at

the proper angle, and arranging the worm-pin-  
ion upon the adjustable shaft *d*, so that the  
shaft may slide through it, as will be easily  
understood by the skillful mechanic; but the  
perfection of the product of my present ma-  
chine is so great that I do not apprehend any  
necessity for carrying out the principle to the  
extent alluded to.

What I claim as my own invention, and de-

sire to secure by Letters Patent of the United  
States, is—

The combination of the rolls with an adjust-  
able worm-shaft, arranged substantially as  
specified, and for the purposes set forth.

GEO. W. WICKS.

Witnesses:

CHARLES E. WEST,  
L. PITKIN.