

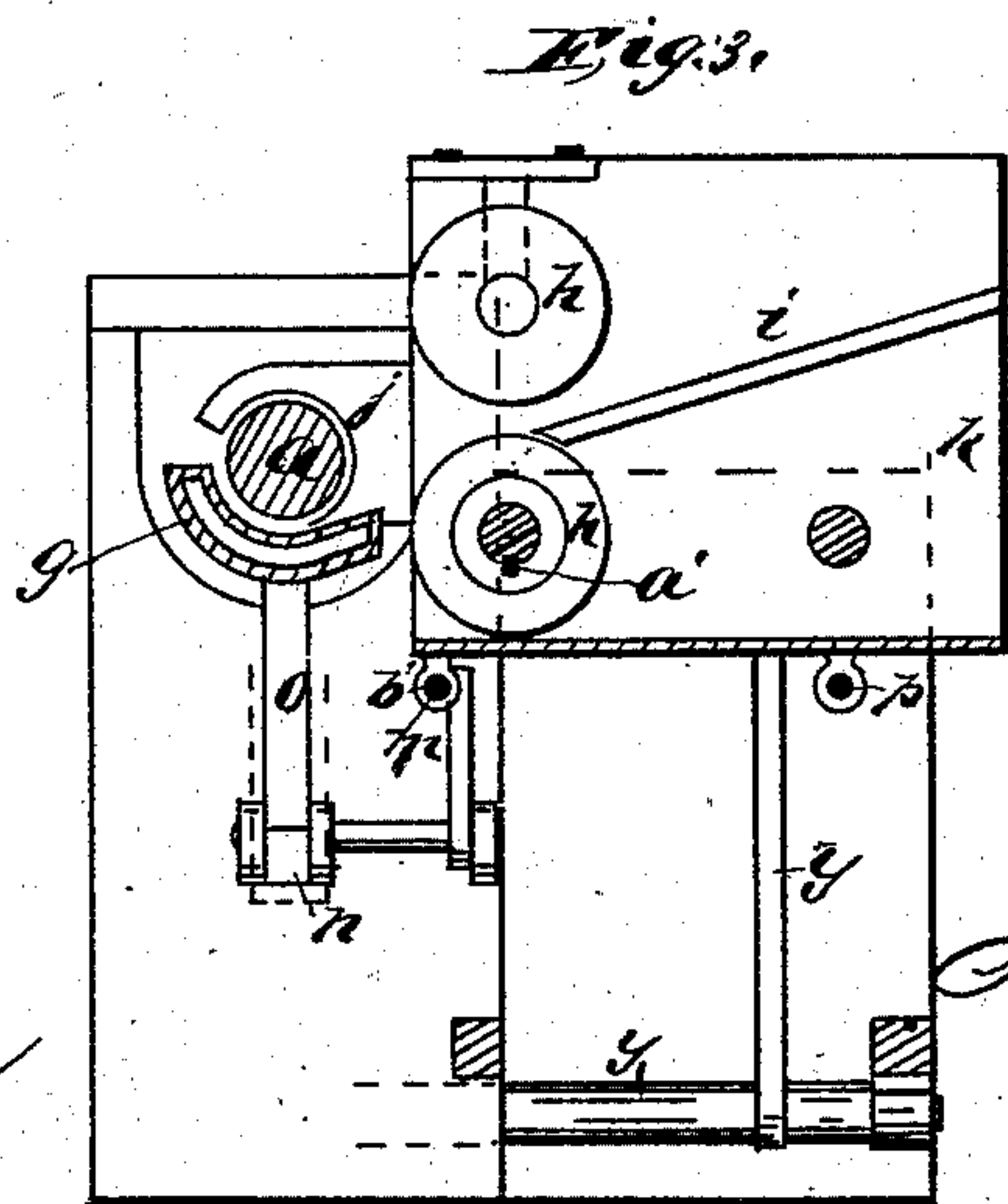
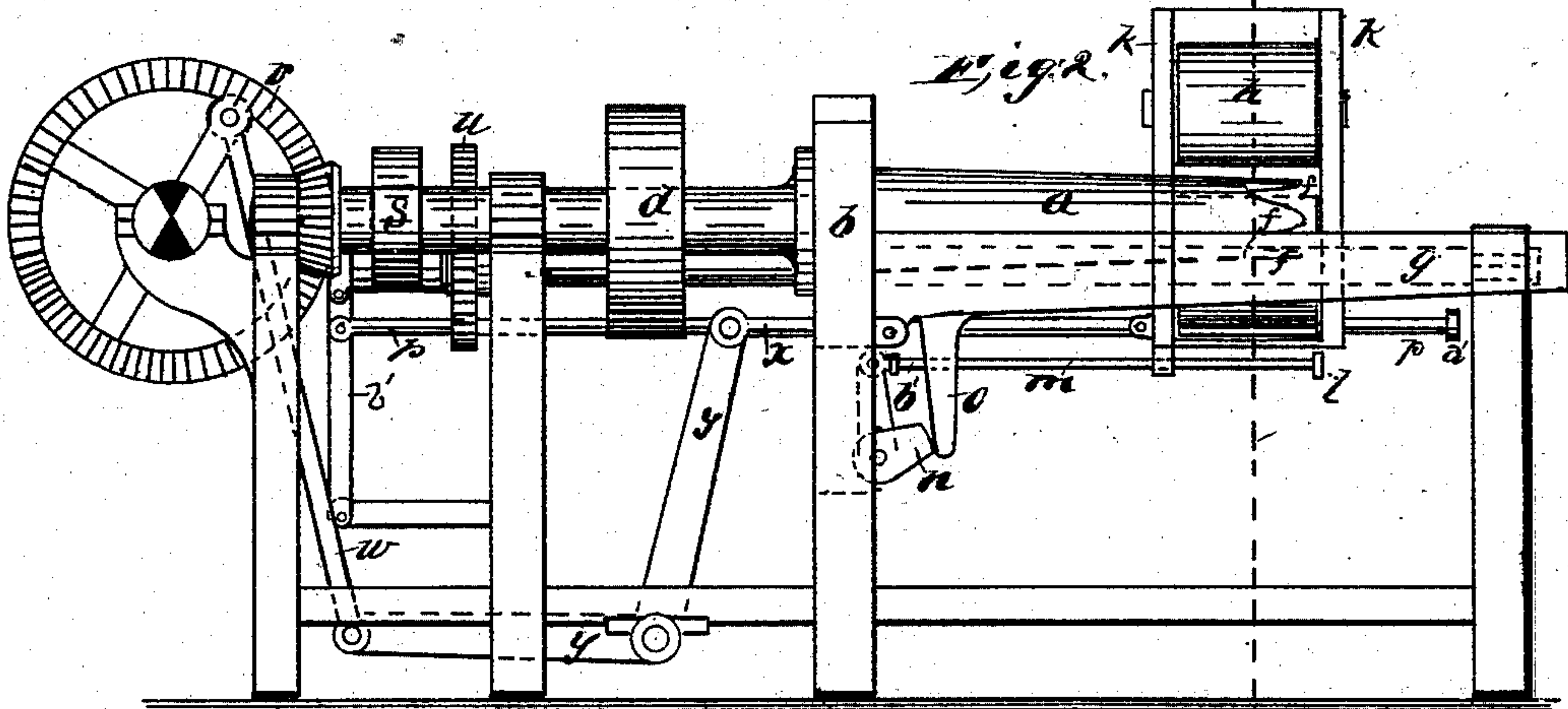
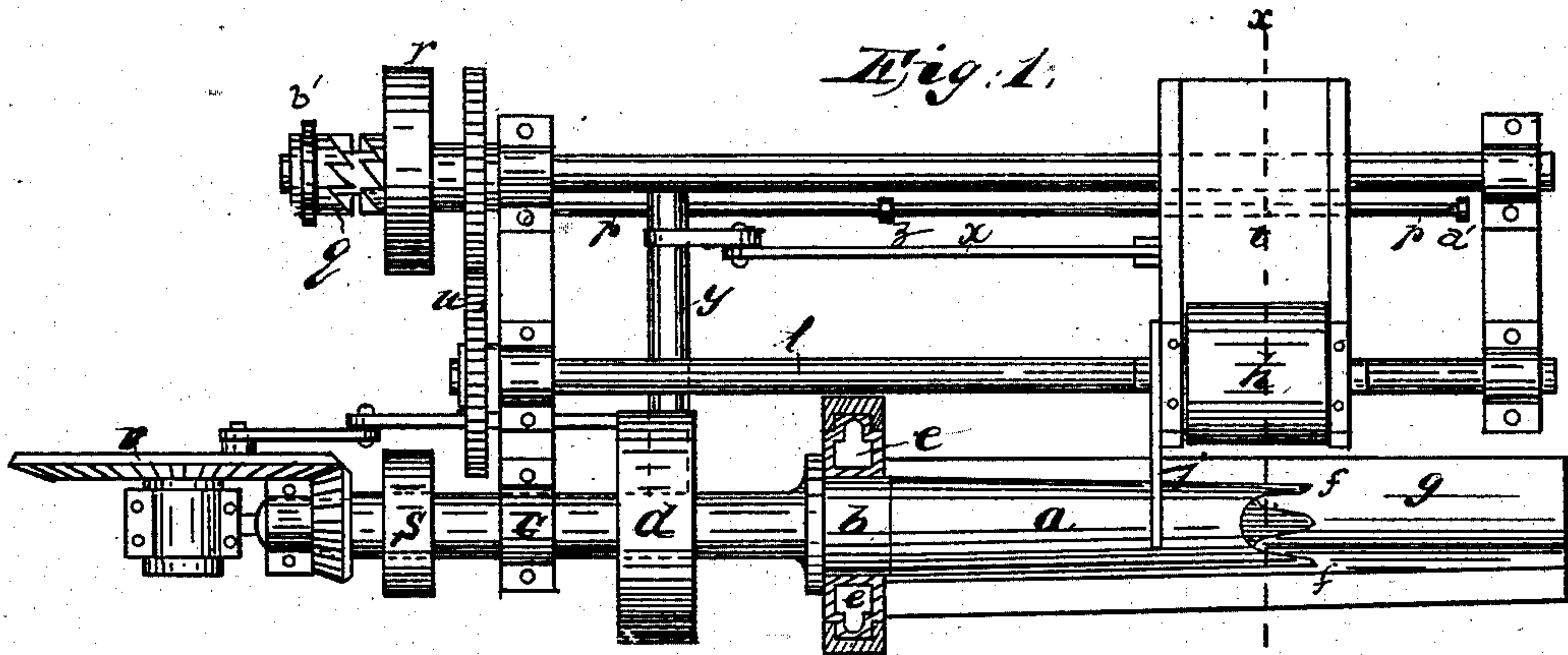
(No Model.)

J. G. STEPHENS.

METHOD OF AND APPARATUS FOR CURLING FIBERS FOR UPHOLSTERY
PURPOSES.

No. 283,162.

Patented Aug. 14, 1883.



WITNESSES:

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METHOD OF AND APPARATUS FOR CURLING FIBERS FOR UPHOLSTERY PURPOSES.

SPECIFICATION forming part of Letters Patent No. 283,162, dated August 14, 1883.

Application filed July 19, 1882. Renewed July 12, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN GEORGE STEPHENS, a subject of Great Britain, and residing at Brooklyn, Kings county, New York, have invented new and useful Improvements in the Method of and Apparatus for Curling Fibers for Upholstery Purposes, of which the following is a specification.

My invention consists of a method of curling animal hair and vegetable fibers for upholstery purposes by coiling them around a heated mandrel or spindle, and at the same time rubbing them against the surface of a heated plate or trough, so as to subject the fibers to heat, rubbing, and pressure while winding on the spindle, and for a period of time thereafter, in a manner calculated to make much stiffer fibers and more rigid curls than as heretofore made by twisting or crimping the fibers.

The apparatus which I prefer to use consists of a steam or gas heated revolving spindle and a similarly heated trough, between which and the spindle the fibers are delivered by feed-rollers, so as to coil on the spindle along its whole length between it and the trough, by which it is rubbed for a suitable length of time and then discharged, all as hereinafter fully described, reference being had to the accompanying drawings, in which—

Figure 1 is partly a plan view and partly a horizontal section of the said apparatus. Fig. 2 is a side elevation. Fig. 3 is a sectional elevation taken on line *x x*, Figs. 1 and 2; and Fig. 4 is a perspective view of a bunch of coiled, heated, rubbed, and pressed fiber as it is delivered from the machine.

a represents a tapered spindle arranged horizontally in bearings *b* and *c* suitably for being rotated at a high speed by a belt on a pulley, *d*, one of its bearings, *b*, being chambered, as at *e*, for a circulation of steam for heating the spindle; or the spindle may be hollow, if preferred, and have the steam circulate through it. The point has two or more prongs, *f*, by which to engage the fibers to begin the twisting of them around it.

g is a steam-heated trough, partly encircling the spindle, for pressing the fibers between it and the spindle.

h represents feed-rolls for supplying the fibers from a chute, *i*; and *j* is a discharger for

stripping the coils off from the spindle when completed.

To begin with, the rollers being shifted to the outer end of the spindle, the carriage *k*, striking the head *l* of rod *m*, will throw cam *n* down against arm *o* of the trough *g* and shift the trough into close proximity to the spindle *a*, ready for pressing the fibers to be supplied by rollers *h* against the spindle. At the same time said carriage will, by pulling rod *p*, by contact with head *a'* thereof and shifting clutch-lever *b'*, engage clutch *q* with pulley *r*, so that it, being turned by a belt from pulley *s* on the main shaft, will revolve shaft *t* by wheels *u*, which sets the feed-rollers in motion at the same time that the crank-wheel *v* begins to draw said rolls along toward the base of the spindle by the rods *w x* and bell-crank *y*. The feed-rolls, being then turned by the feather *a'*, along which the lower roll slides on the shaft *t*, will supply the fiber to the spindle, to be drawn around and coiled on it, between it and the trough *g*, until the rolls have reached the base of the spindle, when case *k*, striking a collar, *z*, on rod *p*, will shift clutch *q* out of gear, stopping the rotation of the rolls. At the same time said case will strike the collar *b'* of rod *m* and throw up cam *n*, so as to let trough *g* slack away from spindle *a* sufficiently to allow scraper *j* to discharge the coil *c'* from the spindle by the return motion of case *k* to the place of beginning again, as before.

I do not limit myself to the horizontal arrangement of the spindle *a* and heating and rubbing trough, for they may be arranged vertically, with the points downward, the rollers *h* being also arranged vertically and made to shift up and down; neither do I limit myself to mechanism for reciprocating the feed-rollers, nor the mechanism for effecting the changes of the movements of the rollers, for these may be varied at will.

What I claim, and desire to secure by Letters Patent, is—

1. The method of coiling and setting fibers for upholstery purposes, by winding them on a spindle while subject to heat and pressure, substantially as described.

2. The method of preparing fibers for upholstery purposes, by coiling and rubbing said

fibers while subject to heat and pressure, substantially as described.

3. The combination, in a machine for coiling and setting fibers for upholstery purposes, of
5 a rotary spindle and a rubbing-trough, substantially as described.

4. The combination, in a machine for coiling and setting fibers for upholstery purposes, of
10 a heated rotary spindle and a heated rubbing-trough, substantially as described.

5. The combination, in a machine for coiling and setting fibers for upholstery purposes, of
a rotary spindle, rubbing-trough, and feed-rollers, substantially as described.

15 6. The combination, with the spindle of a machine for coiling and setting fibers for upholstery purposes, of a rubbing-trough arranged to shift toward and from the spindle, substantially as described.

20 7. The combination, in a machine for coiling and setting fibers for upholstery purposes, of a rotary spindle, a rubbing-trough, and feed-rollers arranged to slide along the spindle for coiling the fibers thereon, substantially as described.
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8. The combination, in a machine for coiling and setting fibers for upholstery purposes, of a rotary spindle, a rubbing-trough, and feed-

rollers arranged to slide along the spindle for coiling the fibers thereon, and stop mechanism
30 for arresting the feed-rollers for the discharge of the coils, substantially as described.

9. The combination, in a machine for coiling and setting fibers for upholstery purposes, of
35 a rotary spindle, a rubbing-trough, feed-rollers arranged to slide along the spindle for coiling the fibers thereon, stop mechanism for arresting the feed-rollers for the discharge of the coils, and a discharger for discharging said
40 coils, substantially as described.

10. The combination, in a machine for coiling and setting fibers for upholstery purposes, of
45 a rotary spindle, a rubbing-trough, feed-rollers arranged to slide along the spindle for coiling the fibers thereon, stop mechanism for arresting the feed-rollers for the discharge of the coils, a discharger for discharging the coils, and mechanism for returning the feed-rolls
50 along the spindle and starting them and renewing the feeding of the fiber when the coils are discharged, substantially as described.

JOHN GEORGE STEPHENS.

Witnesses:

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