No. 680,656. Patented Aug. 13, 1901.

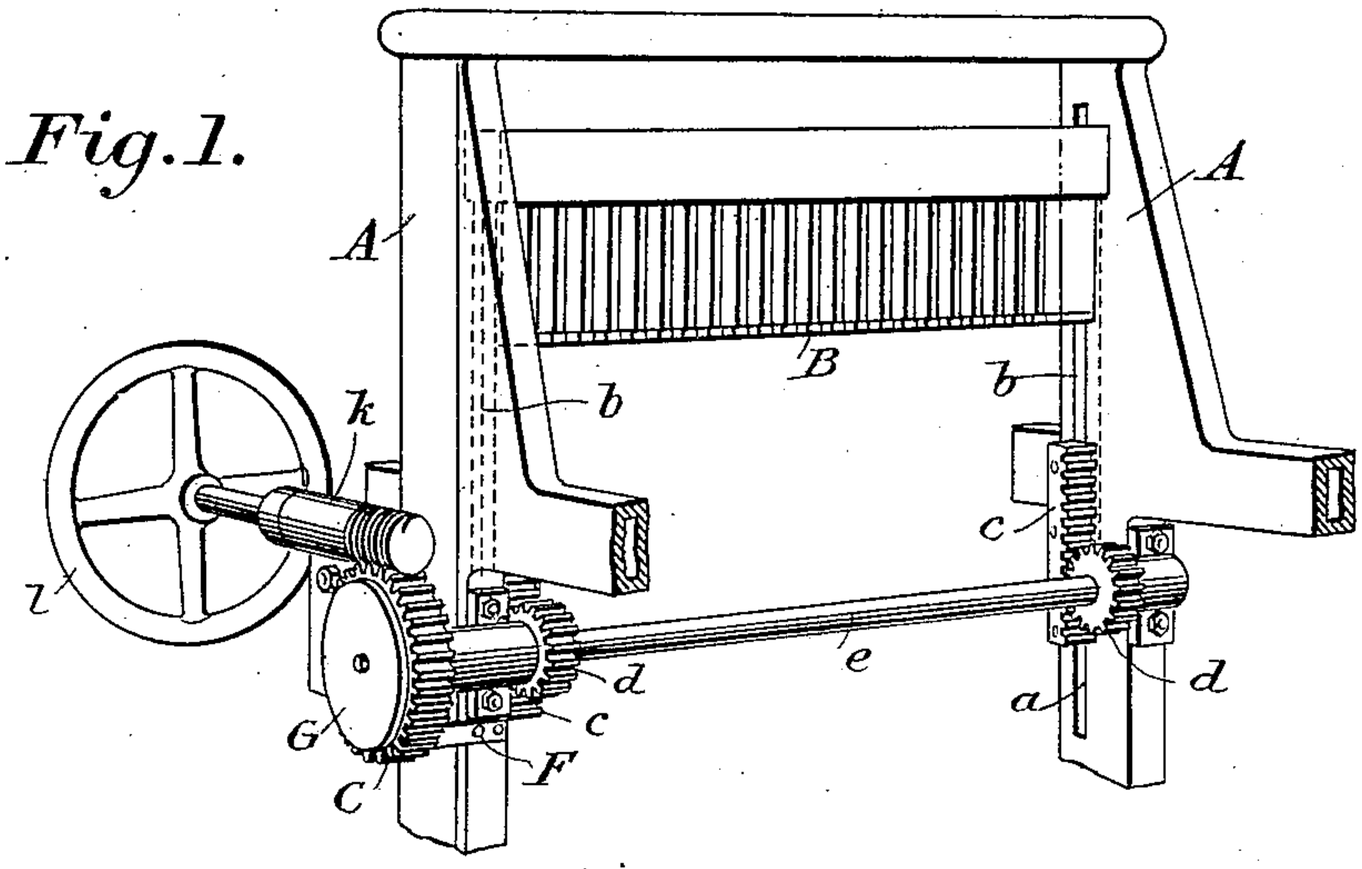
N. GRAY, Jr.

HAND CLAMPING DEVICE FOR PAPER CUTTING MACHINES.

(Application filed Oct. 12, 1900.)

(No Model.)

Fig. 1.



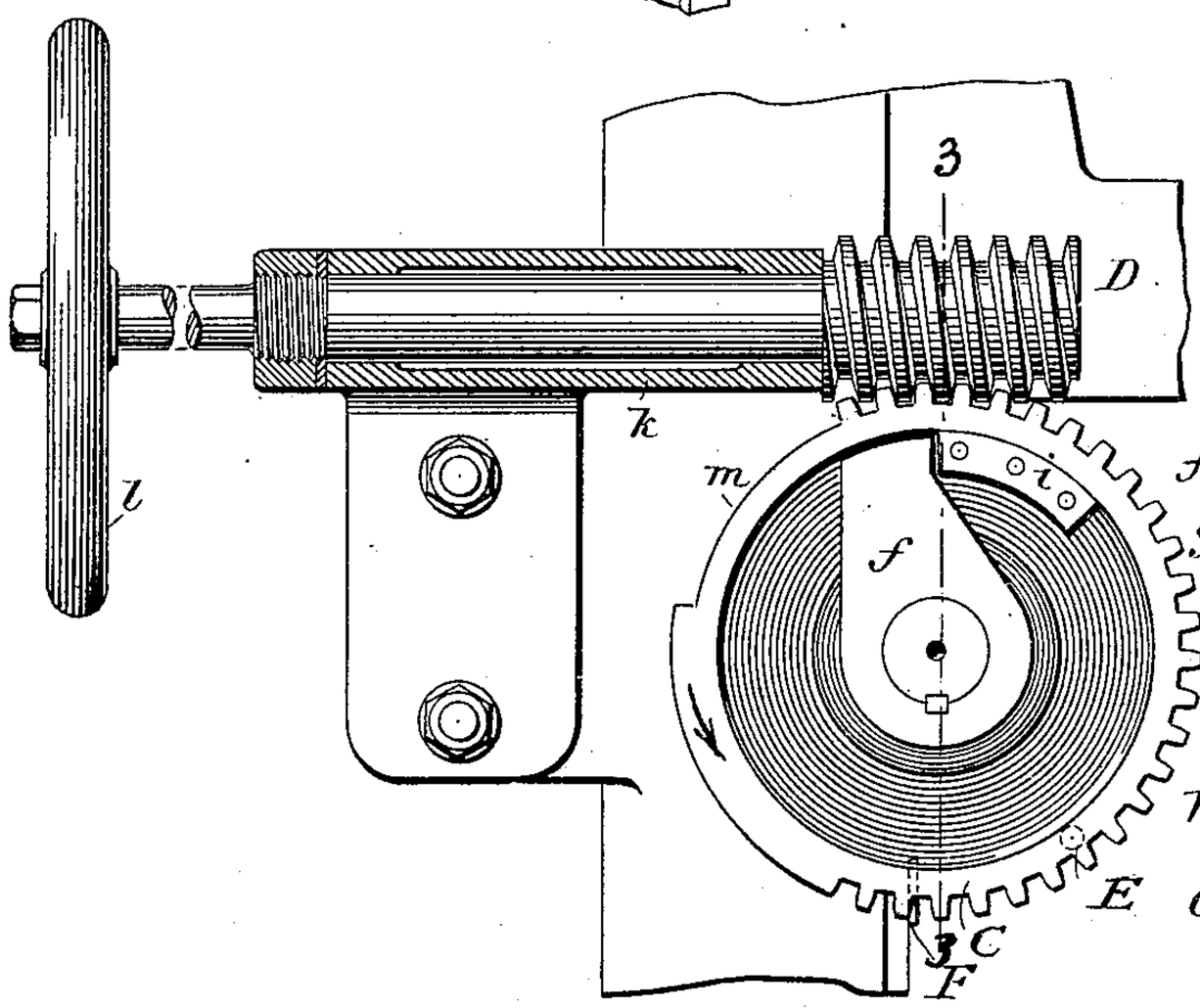


Fig. 2.

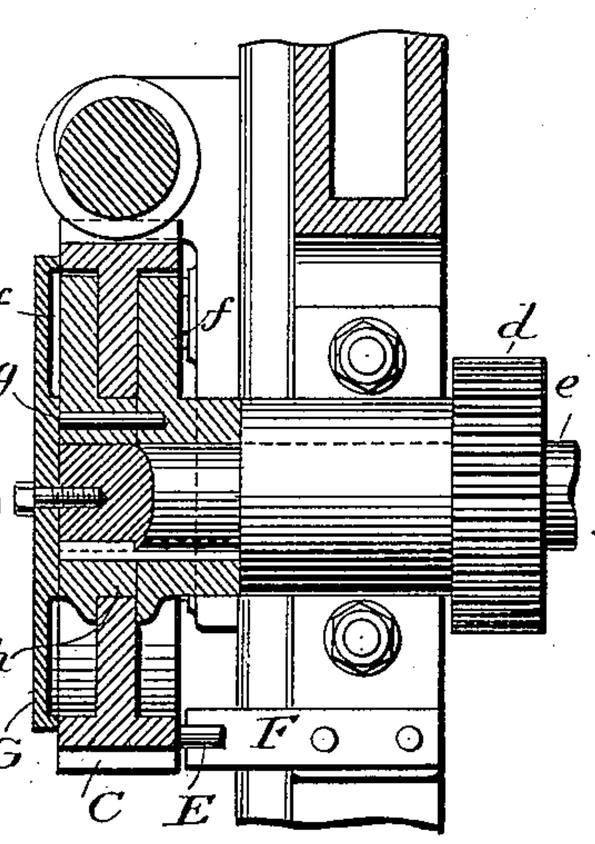


Fig. 3.

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NIEL GRAY, JR., OF OSWEGO, NEW YORK, ASSIGNOR TO OSWEGO MACHINE WORKS, OF SAME PLACE.

HAND CLAMPING DEVICE FOR PAPER-CUTTING MACHINES.

SPECIFICATION forming part of Letters Patent No. 680,656, dated August 13, 1901

Application filed October 12, 1900. Serial No. 32,859. (No model.)

To all whom it may concern:

Be it known that I, NIEL GRAY, Jr., a citizen of the United States, residing at Oswego, in the county of Oswego and State of New York, have invented certain new and useful Improvements in Hand Clamping Devices for Paper-Cutting Machines; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates generally to paper-cutting machines, and particularly to the hand clamping mechanism of such machines; and it has for its object to provide a simple, durable, and comparatively inexpensive device for hand-clamping the work and which is adapted for use on machines having power-operated clamping devices, as well as those on which hand-clamps alone are used, the change from hand to power, and vice versa, being accomplished without changing the adjustment of any part of the machine; and it consists in the parts and combinations of parts hereinafter described and claimed.

In the accompanying drawings, forming a part of this specification, Figure 1 is a perspective view from the rear of the front part of the frame; Fig. 2, an enlarged detail side elevation of the device with cap *g* removed; and Fig. 3, a vertical section on the line 3 3, Fig. 2.

Similar letters refer to similar parts throughout all the views.

As this invention relates only to the clamping mechanism of paper-cutting machines, only such parts of such machines as are connected with the operation of the clamp will be described.

Referring to the drawings, A represents the uprights of the frame of a paper-cutting machine, in which grooves *a* are formed for the straps *b* of the racks *c*, which are operated by the pinions *d*, mounted on a shaft *e*, to lower the clamp B to the work, said straps being connected to the ends of the clamp in the usual or in any preferred manner. On one end of the shaft *c* are keyed the dog-levers *f*, which are fastened to each other by pins or screws *g*. One of the dog-levers, preferably the outer one, is formed with a circular hub or shoulder *h*, on which, between the two dog-levers, a worm-gear C has its bearing and is free to revolve therebetween in either direction, said worm-gear having lugs *i* on each side thereof adapted to engage with the dog-levers *f*. A worm D, held in a suitable bearing *k* on the frame of the machine and operated by a hand-wheel *l*, engages the worm-gear C, so as to rotate the same, said worm being right-hand threaded, so that wheel *l* when rotated in the direction of the hands of a watch will bring the clamp down, this arrangement being found most convenient for the operator. Thus upon rotating the hand-wheel the worm-gear is turned in the direction of the arrow, Fig. 2, and causes the lugs *i* to engage the dog-levers, which being keyed to the shaft *e* turn it, and through the pinions *d* and racks *c* pulls down the clamp to the work. Rotating the hand-wheel in the opposite direction permits the clamp to be raised either directly or indirectly by means of a counterbalance weight or springs or by any other convenient or suitable means to its top position, such movement keeping the levers and lugs in engagement until the top position of the clamp is reached and it stops, at which point the clamp-shaft *e* necessarily stops rotating and the lugs start to leave the levers *f*. In order to prevent the worm-gear from being turned farther than is necessary and to prevent the dog-levers from striking the other sides of the lugs when the clamp is being operated by power, (in which case the worm D and worm-gear C are stationary,) the teeth of the worm-gear are cut away for a suitable distance at a point to one side of and near the ends of the lugs, as at *m*, so that when lugs *i* leave the levers *f* the worm D would have no more teeth to engage and the parts could not be operated by hand. To prevent the worm-gear from thus running away from the worm and to hold it in a position ready to mesh with the worm when the latter is rotated, so as to pull the clamp down, a lug or pin E projects from the worm-gear and engages a spring F, secured to the frame, both the pin and the spring being so located relative to each other that the spring will begin to be compressed by the pin as soon as the worm nears the last tooth in the worm-

gear adjacent the cut-away space, and thus prevent the worm-gear being rotated out of mesh with worm.

G is a safety-cap secured to the shaft *e* over the dog-levers.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. In a paper-cutting machine, the combination with a clamp and a shaft for operating the clamp, of a worm-gear loosely mounted on said shaft, a worm engaging said gear, and means for coupling said gear and shaft, whereby the rotation of the worm rotates the shaft.

2. In a paper-cutting machine, the combination with a clamp, and a shaft for operating said clamp, of a worm-gear loosely mounted on said shaft, a worm meshing with said worm-gear, and dog-levers for engaging said gear secured to said shaft, whereby said shaft may be rotated by said worm.

3. In a paper-cutting machine, the combination with a clamp, and a shaft for operating said clamp, of a worm-gear loosely mounted on said shaft, a worm meshing with said worm-gear, and means for automatically coupling said worm-gear and shaft upon rotation of said worm.

4. In a paper-cutting machine, the combination with a clamp, and a shaft for operating said clamp, of a worm-gear loosely mounted on said shaft, means for coupling said gear and shaft, a worm for operating said gear, and means for limiting the rotation of said worm-wheel.

5. In a paper-cutting machine, the combination with a clamp, of a shaft for operating said clamp, dog-levers secured to said shaft, a worm-gear loosely mounted on said shaft, lugs projecting from said worm-gear into the path of said dog-levers, and a worm for operating said worm-gear.

6. The combination with the clamp-shaft of a paper-cutting machine, of a worm-gear having a recessed untoothed portion on its periphery, loosely mounted on said shaft, a worm engaging said worm-gear, and means for stopping the motion of said worm-gear at a predetermined point in its rotation, whereby the gear is always held in mesh with the worm.

In testimony whereof I affix my signature in presence of two witnesses.

NIEL GRAY, JR.

Witnesses:

ELISHA B. POWELL,

JAMES O'GRADY.