(No Model.)

F. KEPP.

MOLDING MACHINE.

No. 432,243. Patented July 15, 1890.

Fig. 1.

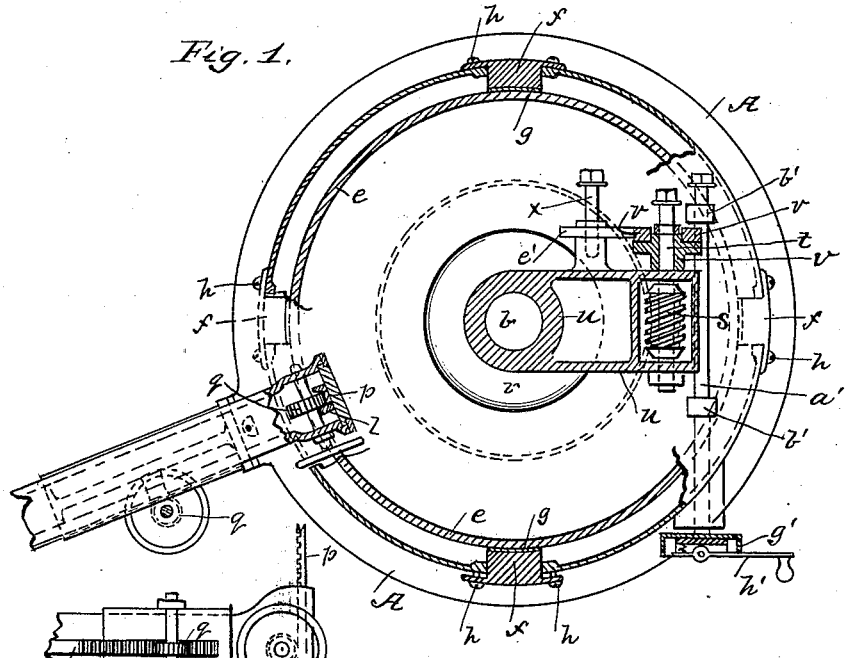
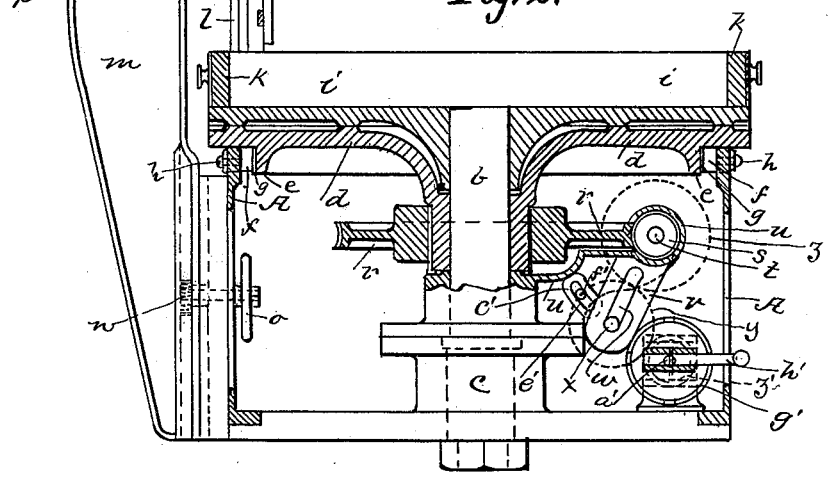


Fig. 2.



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UNITED STATES PATENT OFFICE.

FERDINAND KEPP, OF ALLEGHENY, PENNSYLVANIA.

MOLDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 432,243, dated July 15, 1890.

Application filed July 13, 1889. Serial No. 317,468. (No model.)

To all whom it may concern:

Be it known that I, FERDINAND KEPP, a citizen of the United States, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Gear Molding-Machines; and I do hereby 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 pertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improvement in gear molding-machines; and it consists in a device whereby the revolving flask may be made to rotate without lost motion, thereby producing accurate work from the machine, together with certain other details of construction and arrangement of parts, as will be fully set forth hereinafter.

In the accompanying drawings, Figure 1 is a sectional plan view of a gear molding-machine provided with my improved adjustable brakes for taking up the lost motion of the revolving flask. Fig. 2 is a central sectional elevation of the same.

I put my invention into practice with a gear molding-machine consisting of a circular frame A, having a vertical shaft *b* arranged in a suitable bearing *c* in the center of the same. Loosely attached to this shaft *b* is a disk *d*, provided on its under side with a downwardly-projecting annular flange *e*, against which a series of adjustable brakes *f* are made to operate. These brakes *f* consist of castings secured in openings arranged about the top perimeter of the frame A, each of which has secured on its inner face a leather pad *g*, and is held tightly against the annular flange *e*. These brakes *f* may be adjusted toward or away from the flange *e* by means of the small bolts *h*, which attach the brakes *f* to the frame A.

On the top of the disk *d* is the flask *i*, in which the mold is to be formed.

At one side of the frame A is an upwardly-extending bracket *m*, which may be moved vertically by means of a rack and pinion *n* and a hand-wheel *o*, the object of this movement being to regulate the height of the pattern *l*, secured at the top of the bracket *m*. On the top of this bracket *m* is a means for moving the pattern *l* inward to make large and small gear-wheels, and also a means for moving the said pattern *l* vertically in and out of the sand *k*. These two movements are accomplished by means of racks *p p* and pinions *q q* in a manner well known to the art.

Beneath the revolving disk *d*, and attached to the hub of the same, is a worm-wheel *r*, which meshes with a worm *s*, mounted on a shaft *t*, secured in the proper position by a strong bracket *u*. Loosely attached to this bracket *u* is another *v*, which projects downward and is provided with a slot *w*, in which a short stub-shaft *x* is secured, which stub *x* is provided with a small gear-wheel *y*, meshing with another *z* on the shaft *t*, and also with a gear-wheel *z'*, mounted on a shaft *a'*, arranged in suitable bearings *b'* at the base of the frame A. This small hanging bracket *v* may be secured in any desired position by means of a slotted projecting portion *e'*, provided with a bolt *f'*, which may be attached to the web of the bracket *u*. At one end of the shaft *a'* is an index-plate *g'*, which is provided with a hand-lever *h'*, which, when revolved, rotates the gear-wheel *z'*, which in turn rotates the gear-wheel *y*, secured in the lower end of frame *v*, which, as it meshes with the wheel *z* on the shaft *t*, causes the worm-screw S on the same shaft to be rotated, and its motion being communicated through the worm-wheel *r* to the disk *d* the latter is caused to revolve.

By altering the gearing *y z z'* and revolving the hand-lever *h'* one or more revolutions, or any fractional part of a revolution, the disk *d* is given a rotary motion equal to the distance between the centers of the gear-wheel to be molded. This result is obtained by a calculation similar to that used in the ordinary screw-cutting lathe.

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

1. In combination with a machine such as described, the worm *s* and wheel *r*, the hanging bracket *v*, and a means for adjusting the same to any desired position, the gear-wheels *z z' y*, and a suitable index-plate *g'*, whereby the disk *d* may be given any desired rotary movement on its axis.

2. In combination with the revolving disk, the central stationary shaft, and the worm-wheel of a gear molding-machine, the fixed bracket *u*, the shaft *t*, mounted in said fixed bracket and carrying the worm S, and gear-wheel *z*, the depending slotted hanger *v*, adjustably connected by the slotted projection *e* and bolt *f* to the bracket *u*, the stub-axle *x*, fitted in said slotted hanger, the gear-wheel *y*, and the gear-wheel *z'*, as and for the purpose described.

In testimony that I claim the foregoing I hereunto affix my signature this 10th day of June, A. D. 1889.

FERDINAND KEPP. [L. S.]

In presence of—
A. A. HEINER,
W. J. MORRIS.