No. 663,998. Patented Dec. 18, 1900.

T. W. R. McCABE.

MACHINE FOR MAKING CLOCK PINIONS.

(Application filed May 17, 1900.)

(No Model.)

3 Sheets—Sheet 1.

Fig. 1

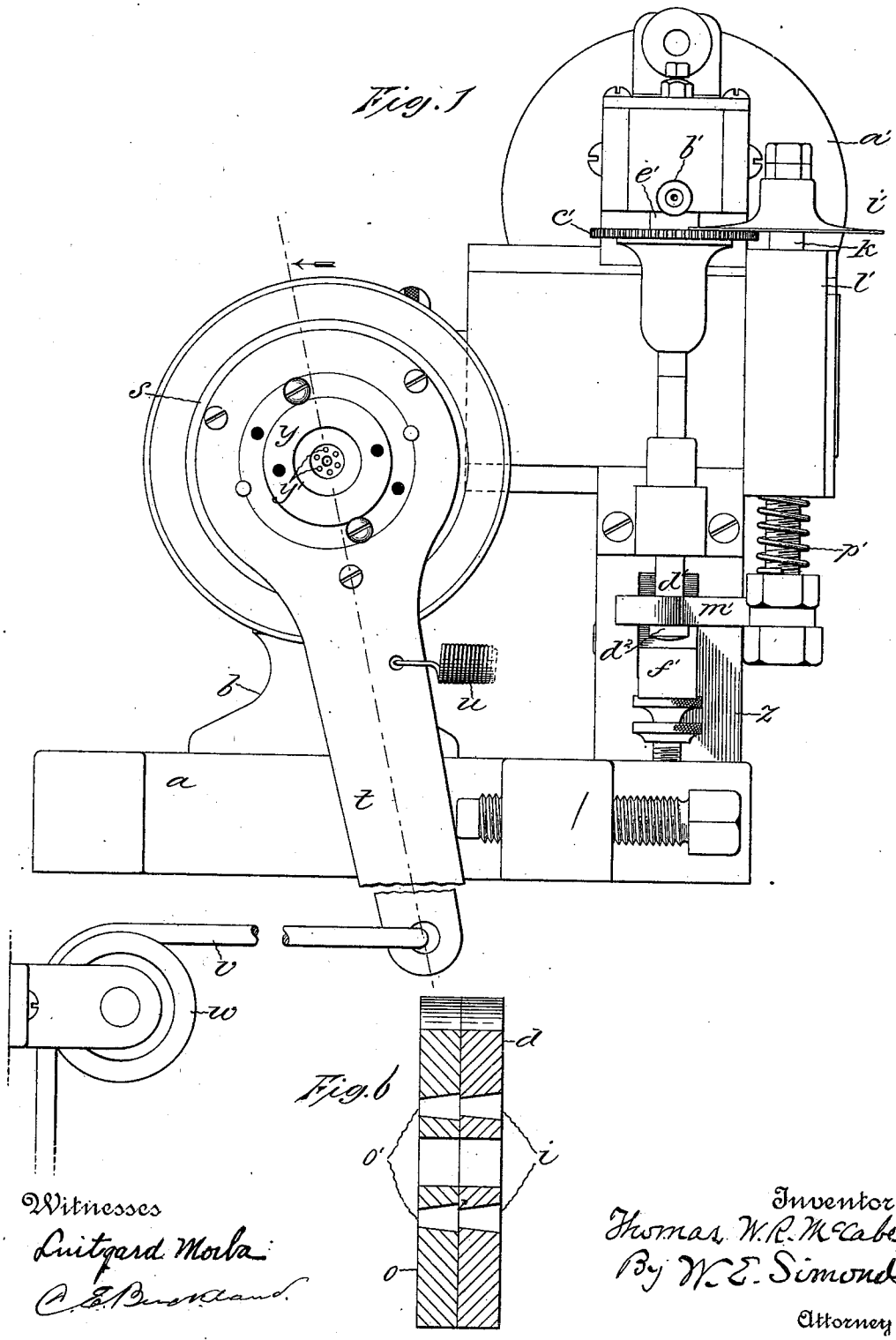


Fig. 6

Witnesses

Luitgard Morla

C. E. Burkland

Inventor

Thomas W. R. McCabe

By W. E. Simonds

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

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Fig. 2

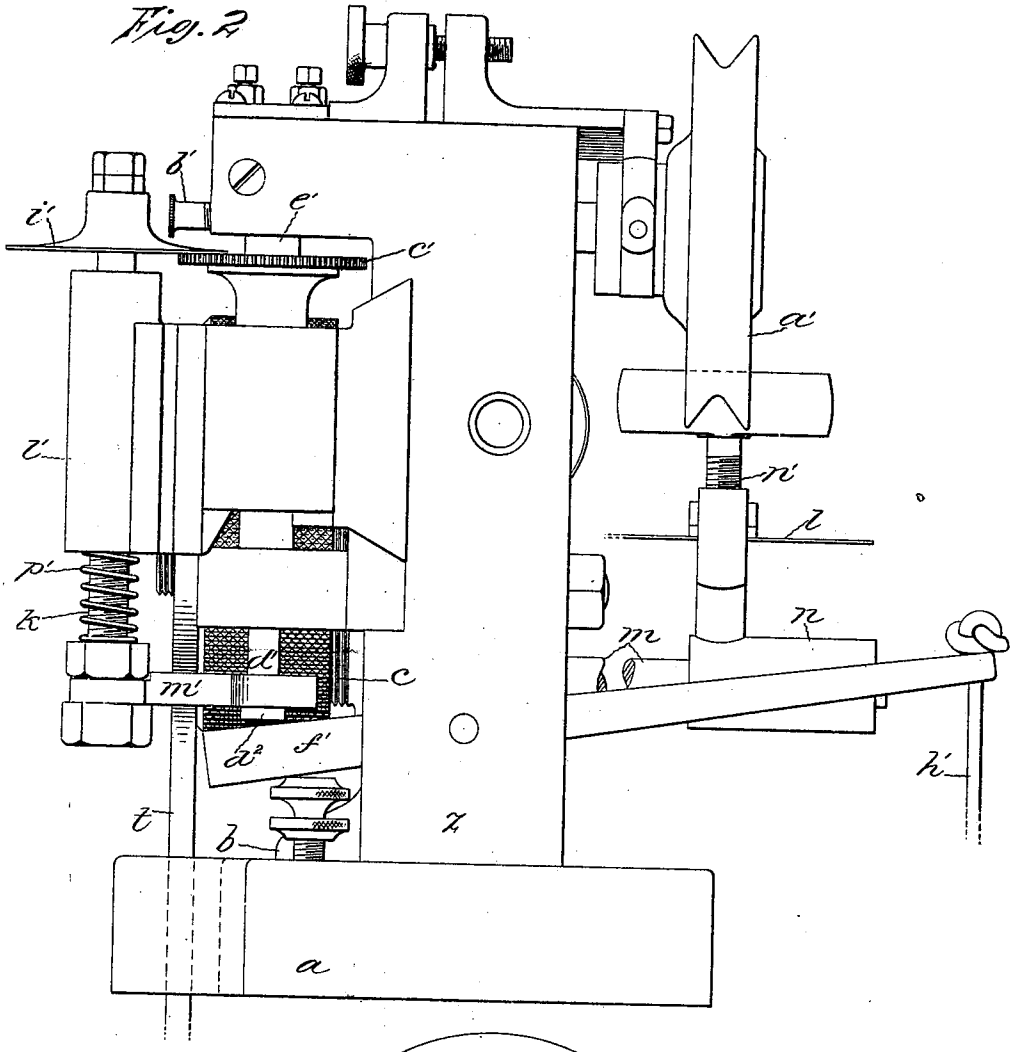
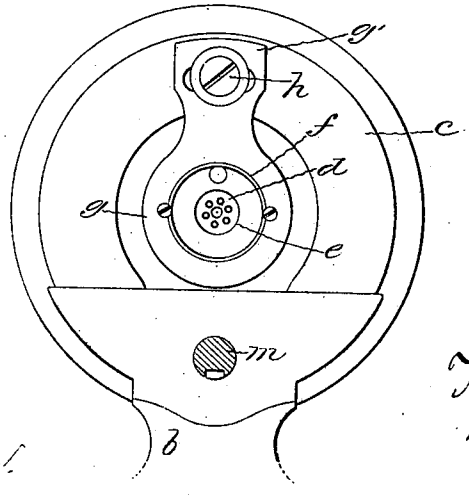


Fig. 5



Witnesses

Luitgard Morba.

C. E. Buckland.

Inventor

Thomas W. R. McCabe

By W. E. Simonds

Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

No. 663,998.

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3 Sheets—Sheet 3.

Fig. 3

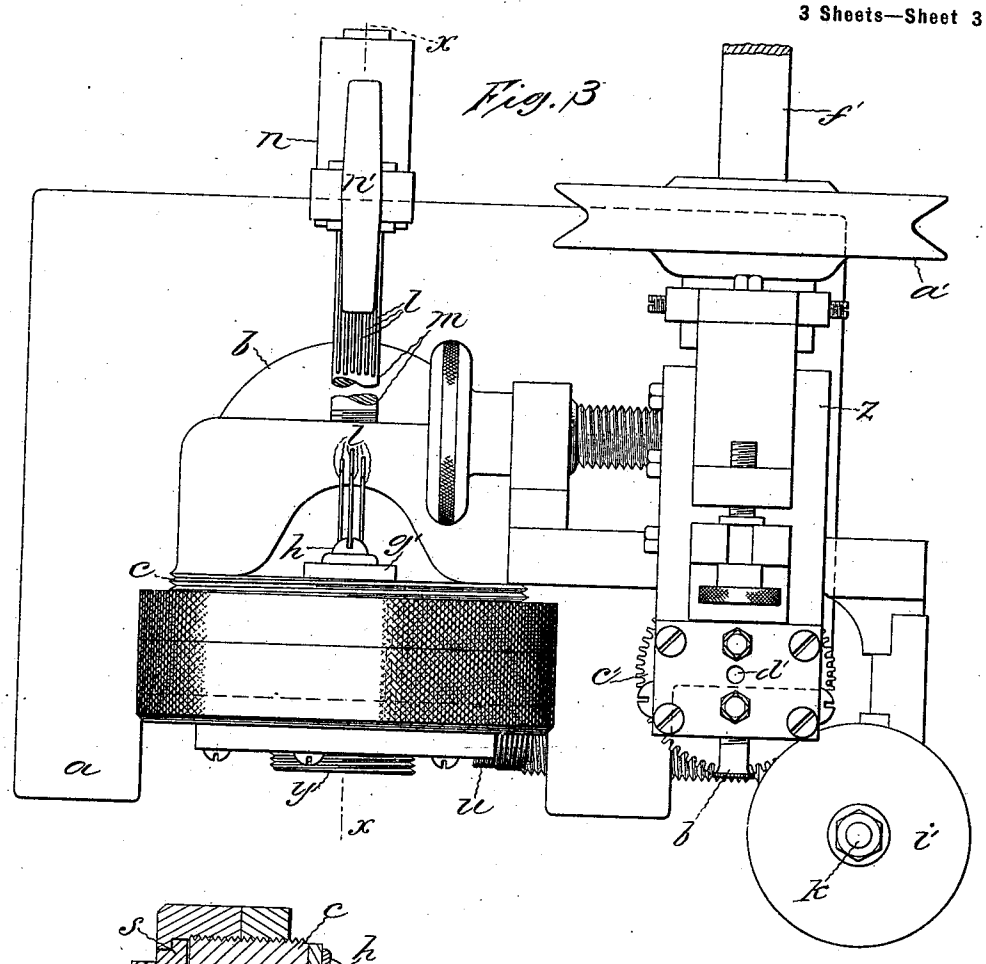
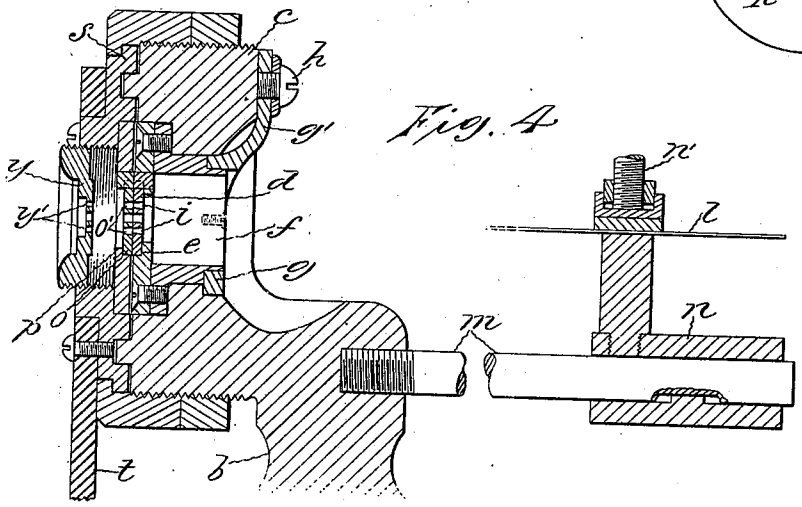


Fig. 4



Witnesses
Luitgard Morla
J. E. Dimond

Inventor
Thomas W. R. McCabe
By W. E. Simonds
Attorney

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS W. R. McCABE, OF WINSTED, CONNECTICUT, ASSIGNOR TO THE WILLIAM L. GILBERT CLOCK COMPANY, OF SAME PLACE.

MACHINE FOR MAKING CLOCK-PINIONS.

SPECIFICATION forming part of Letters Patent No. 663,998, dated December 18, 1900.

Application filed May 17, 1900. Serial No. 17,074. (No model.)

To all whom it may concern:

Be it known that I, THOMAS W. R. McCABE, a citizen of the United States of America, residing and having post-office address at Winsted, in the county of Litchfield and State of Connecticut, have invented a certain new and useful Improvement in Machines for Making Clock-Pinions, of which the following is a description, reference being had to the accompanying drawings, wherein—

Figure 1 is a face elevation view of a machine embodying the improvement. Fig. 2 is a side elevation view of the same machine from the right hand of the view shown in Fig. 1. Fig. 3 is a top view of the same machine. Fig. 4 is a view in central vertical section on the plane denoted by the dotted line *x x* in Fig. 3. Fig. 5 is a rear view of the part which is mainly shown in Fig. 4. Fig. 6 is a view, on an enlarged scale in central cross-section, of the stationary cutter-block and the movable cutter-block.

The object of the improvement is a machine for use in cutting from long pieces of wire-stock the right lengths for the leaves of clock-pinions, inserting such severed portions in collets and burring the metal of one of the collets in such fashion as to secure the leaves in place.

In the accompanying drawings the letter *a* denotes the base of the machine. The pedestal *b* is rotarily adjustable on said base. That pedestal carries the base-ring *c*, open centrally from front to rear. The stationary cutter-block *d* is located centrally in the said opening through the base-ring. That cutter-block might be an integral part of the base-ring were it not desirable that it be removable for renewal and repairs and also rotarily adjustable, as hereinafter described. To the end that it may be thus removable and adjustable it is carried immediately by the cutter-block socket-piece *e*, held by screws to the flanged sleeve *f*, which fits in the central opening through the base-ring. The annular flange on the front end of this sleeve confines the sleeve to the base-ring on the front. The collar *g*, which is screwed to the sleeve *f*, confines that sleeve to the base-ring at the rear. The collar *g* is extended into an arm *g'*, by moving which the cutter-block can be rotarily adjusted, while the headed screw *h*, taking through a slot in said arm, avails to hold it at any desired point of this rotary adjustment. In use after the cutter-block *d* is once given its proper position in proper correspondence with the movable cutter-block (soon to be described) the cutter-block *d* is held stationary by turning in the headed screw *h*, and it remains in that stationary position when in use; but through use and wear the time comes when the cutter-block *d* must be slightly changed and adjusted rotarily to keep it in proper correspondence with the movable cutter-block, which adjustment is effected by loosening the screw *h*, properly moving the arm *g'*, and again tightening the screw *h*.

The letter *i* denotes stock-holes through the stationary cutter. Their intersection with the front face of the cutter-block forms a cutter for use in severing the stock. Surfaces which thus form cutters at their intersection are an acute angle.

The letter *l* denotes stock, practically pieces of steel wire of considerable length.

The letter *m* denotes a rod projecting rearward from the pedestal *b*. On it rides, loose longitudinally but not rotarily, the stock-carrier *n*. The stock passes through the stock-carrier, and the screw-clamp *n'* avails to clamp the stock in the stock-carrier. The operator of the machine by grasping the stock-carrier can move the stock at will.

The letter *o* denotes the "movable" cutter-block, so called because it moves rotarily in severing the stock. The letter *o'* denotes the stock-holes in this movable cutter-block; but here the cutter-angle is obtuse. The cutter-block *o* is carried fast in the cutter-block socket-piece *p'* which is screwed to the movable cutter-base *s*.

The letter *t* denotes an operating-arm secured by screws to the movable cutter-base, which operating-arm is held to the position of rest by the spring *u*. It is when the movable cutter-block is in the position of rest that the stock wires are moved forward by the operator preparatory to the severence of lengths therefrom suitable for leaves of a clock-pinion. The rotary motion of the movable cut-

ter-block for effecting that severence is by the operator's foot pressing upon a foot-lever, from which the cord v runs over the pulley w to the arm t. The spring u returns the arm t to the position of rest.

The letter y denotes a gage-plate which screws into the movable cutter-base s. It is pierced by stock-holes y'. The length of the leaves to be cut from the stock is regulated by the depth to which this gage-plate is screwed into the movable cutter-base s. The operation of that much of the machine which has thus far been described is as follows: The operator places a collet against the outer face of this gage-plate, with its leaf-holes out of alinement with the stock-holes therein. He then moves the stock l forward until its front ends rest against the collet. Then by pressing upon the foot-lever already referred to he operates the movable cutter-block and severs leaf lengths from the stock. Now keeping the collet against the gage-plate he brings the leaf-holes of the collet into line with the stock-holes in the gage-plate and moves the stock l forward, which forces the several leaf lengths into their places in the pinion, which are then secured in place by means and in a manner to be described.

The letter z denotes another pedestal, rising from the base a. That pedestal carries a shaft, on one end of which is the driving-pulley a' and on the other end of which is the bur-wheel b'.

The letter c' denotes a spur-edged idler the hub of which is journaled at its lower end on an upwardly-projecting pintle borne by a shaft d' and at its upper end on the downwardly-projecting pintle e'. The shaft d' rests on the lever f', which is operated by a foot-lever connected to lever f' by cord h'. The letter i' denotes another idler, journaled loosely on a shaft k, which is carried loose longitudinally in a sleeve l'. Fast upon said shaft is the forked arm m', the fork of which embraces the shaft d', resting on collar d^2, which is integral with shaft d'. The spring p' returns both idlers to a position of rest.

The mechanism appurtenant to the pedestal z is for the purpose of fastening the leaf lengths in place in the clock-pinion. After these leaf lengths have been introduced into the collets, as already described, the operator places the clock-pinion with its leaves in mesh with the teeth of the spur-edged idler c' and resting against the periphery of the idler i', one collet below and one above the spur-edged idler. Then operating the lever f' with his foot he raises both idlers and the clock-pinion until the bur-wheel b' makes efficient frictional contact with the upper face of the uttermost collet, with the result of rotating the pinion and both idlers (the shaft of the pinion turning between the operator's finger and thumb) and so burring the uppermost collet-face as to permanently fasten the leaves in their places in the pinion. Now the idlers are allowed to drop to position of rest, and the pinion is finished so far as the mechanism of this patent is concerned.

I claim as my improvement—

1. In a machine of the character described, the combination with the base-ring, and a movable cutter-block; of a sleeve fitting within the ring, a collar attached to the sleeve and having a radially-projecting arm provided with a slot, a screw passing through the slot and taking into the base-ring, a socket-piece removably attached to the sleeve, and a fixed cutter-block carried by the socket-piece in coöperative relation to the movable cutter-block, all substantially as described and for the purposes set forth.

2. In a machine of the character described, the combination with the base-ring, and a movable cutter-block; of a sleeve fitting within the ring and having a flange at the front side of the latter, a collar attached to the rear end of the sleeve, an arm projecting therefrom and adjustably connected with the base-ring, and a fixed cutter-block carried by the flanged end of the sleeve in coöperative relation to the movable cutter-block, all substantially as described and for the purposes set forth.

3. In a machine of the character described, the combination with the base-ring, and a movable cutter-block; of a flanged sleeve located and rotarily adjustable within the ring, a socket-piece held by screws against the flange of said sleeve, and a fixed cutter-block carried immediately by said socket-piece in coöperative relation to the movable cutter-block, all substantially as described and for the purposes set forth.

4. In a machine of the character described, the combination with the base-ring, and a fixed cutter-block removably and adjustably supported therein; of a cutter-base carried by and movable on the ring, means for operating said base, a socket-piece screwed to the base, and a movable cutter-block carried by the socket-piece in coöperative relation to the fixed cutter-block, substantially as described and for the purposes set forth.

5. In a machine of the character described, the combination with the base-ring, and a fixed cutter-block removably and adjustably supported therein; of a cutter-base carried by and movable on the ring, means for operating said base, a gage-plate screwed into and movable with said base, and a movable cutter-block carried by this base between the gage-plate and fixed cutter-block and in cooperative relation to the latter, substantially as described and for the purposes set forth.

6. In a machine of the character described, the two cutter-blocks, both pierced by stock-holes and one rotarily movable upon the other; in combination with the gage-plate adjustable in its relation to the cutter-blocks and itself pierced with stock-holes adapted to be brought into register with the others, all substantially as described and for the purposes set forth.

7. In a machine of the character described, the two cutter-blocks, both pierced by stock-holes and one rotarily movable upon the other; in combination with the gage-plate adjustable in its relation to the cutter-blocks and itself pierced with stock-holes adapted to be brought into register with the others, the stock-carrier, and the screw-clamp thereon opposite the holes in the cutter-blocks, all substantially as and for the purposes set forth.

THOMAS W. R. McCABE.

Witnesses:
SAMUEL A. WETMORE,
SINGNE O. THORELL.