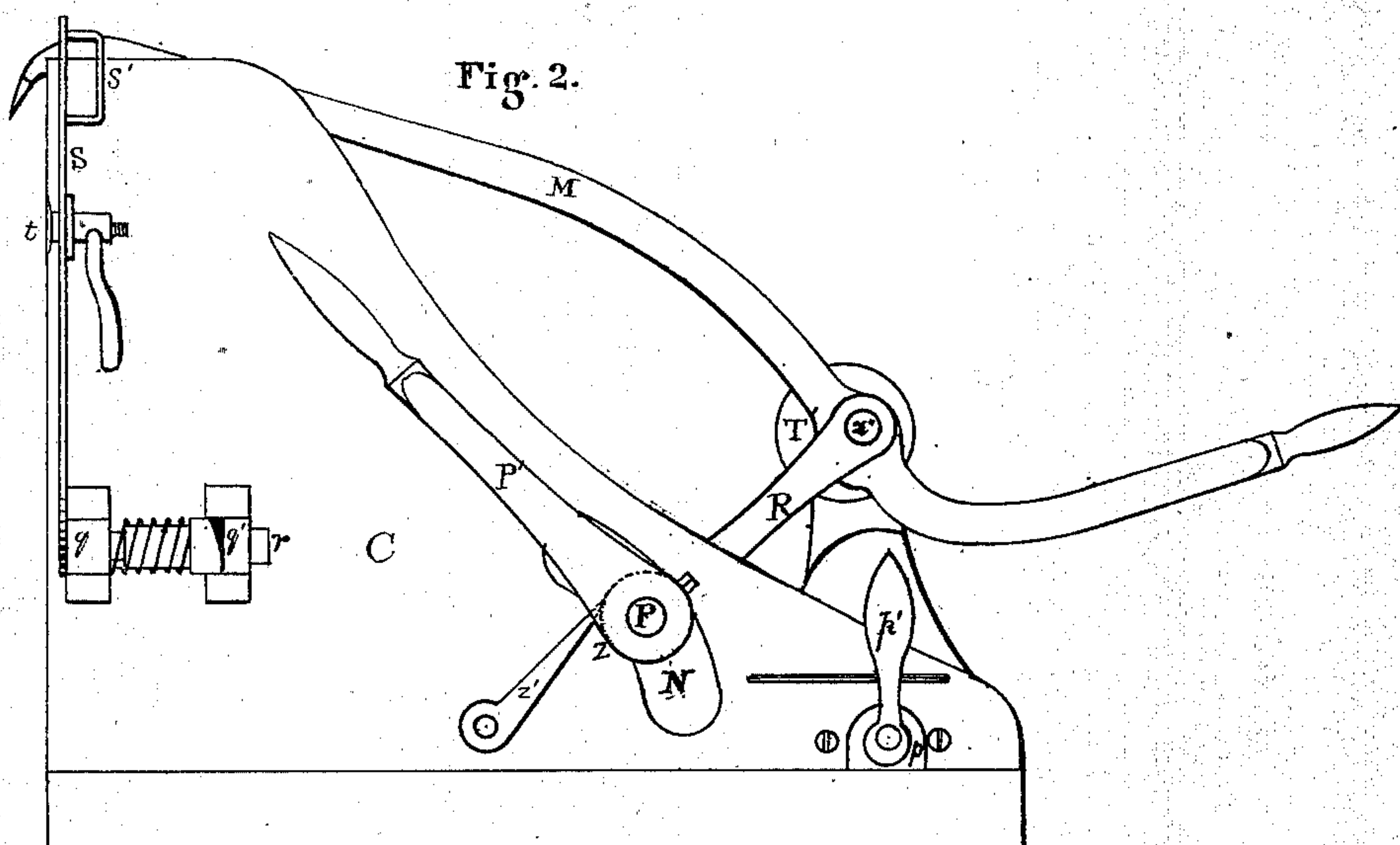
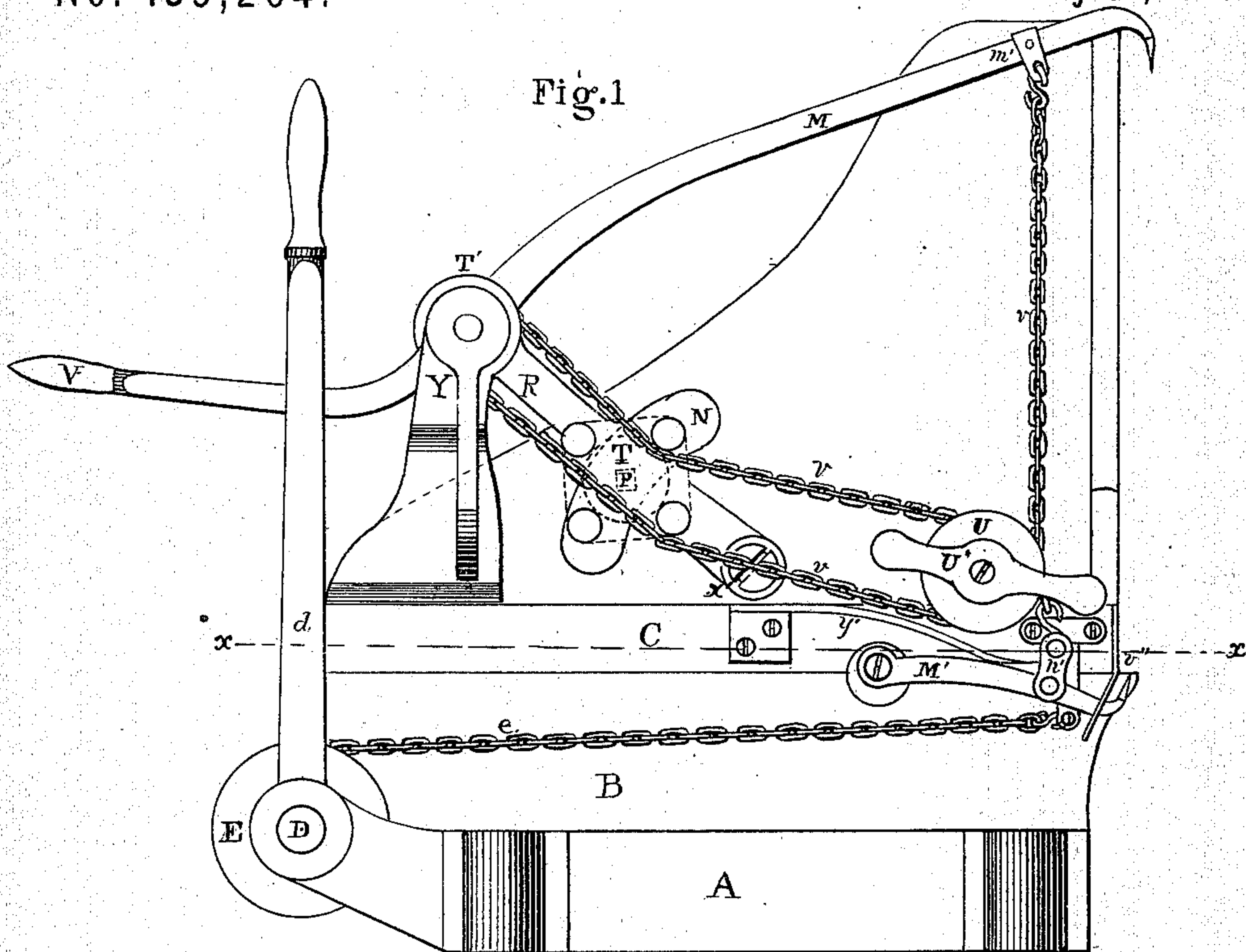


**A. RODGERS.**  
**Saw-Mill Head-Blocks.**

No. 139,264.

Patented May 27, 1873.



Attest  
W. H. Thayer  
W. R. Singleton

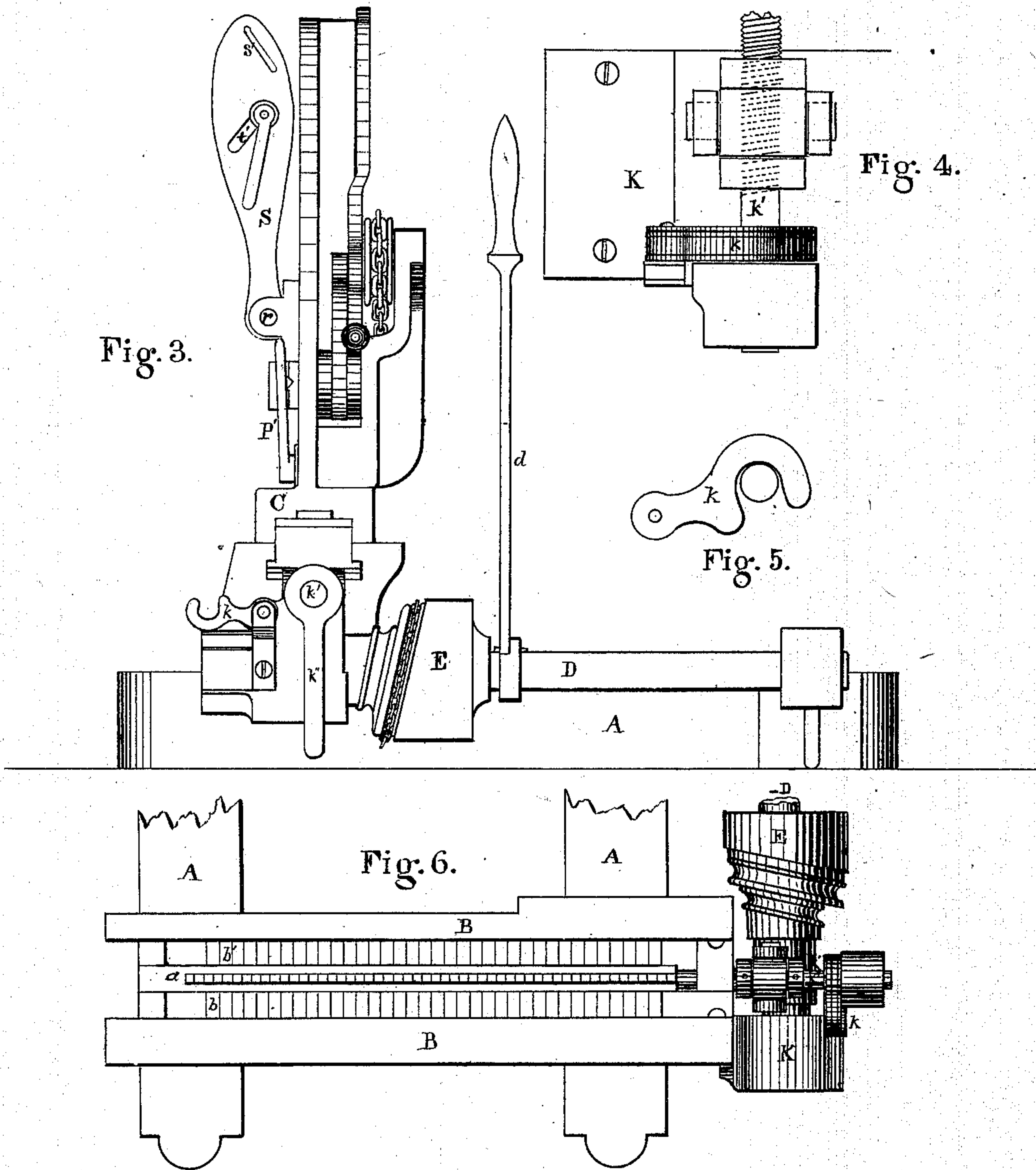
Inventor  
Alexander Rodgers



**A. RODGERS.**  
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*W. H. Chandler*  
*W. R. Singleton*

Inventor  
*Alexander Rodgers*



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fig. 7.

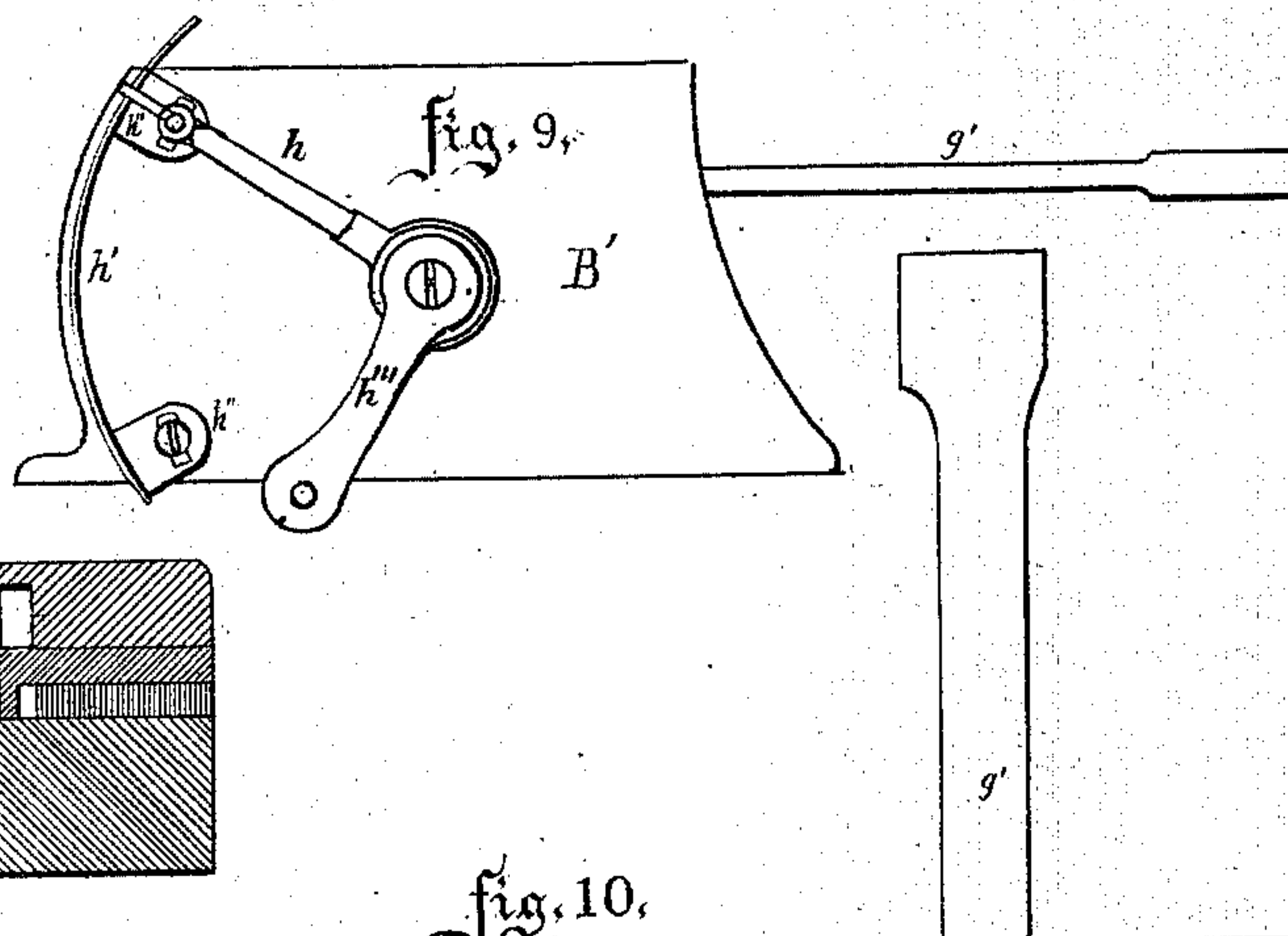
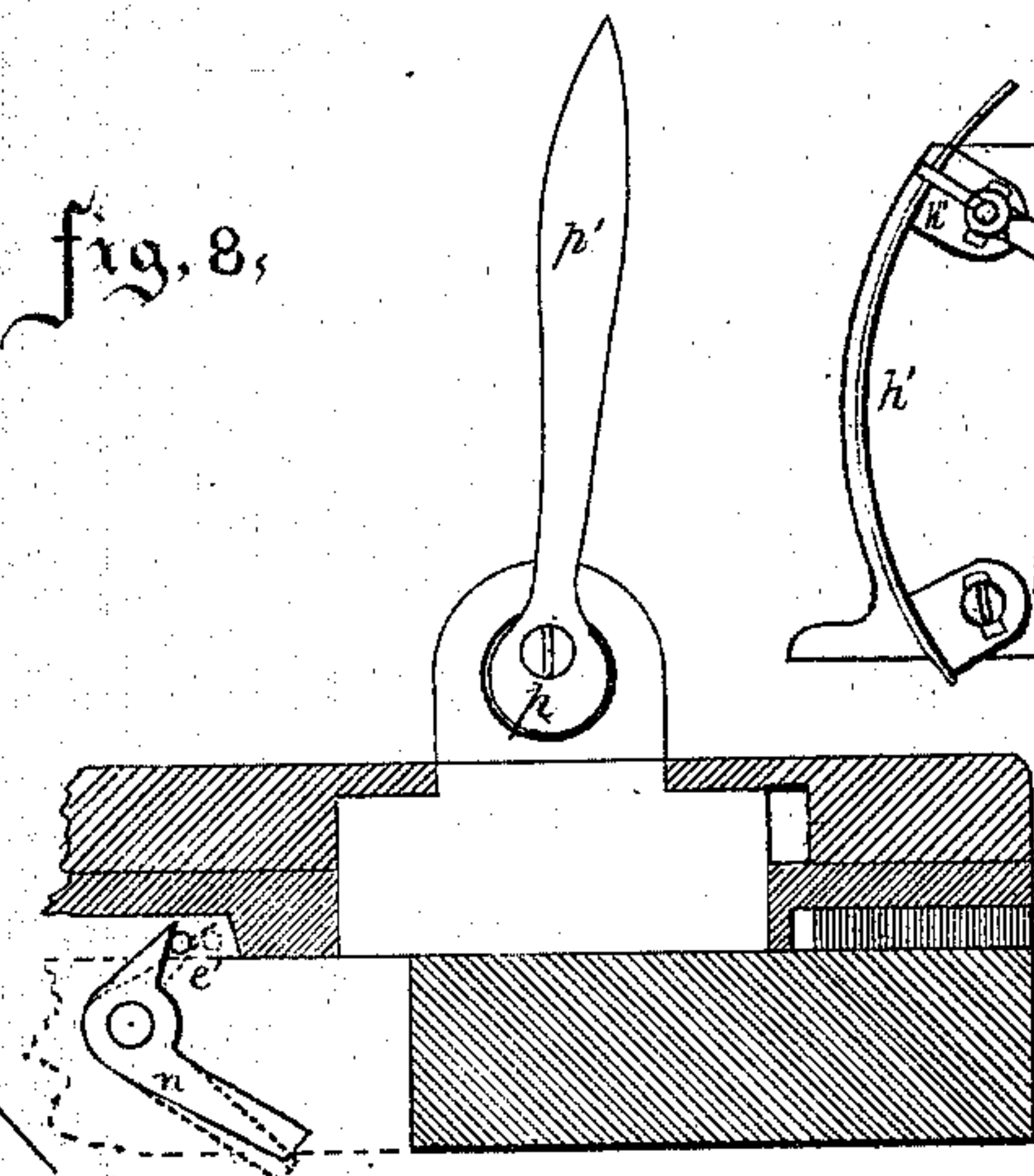
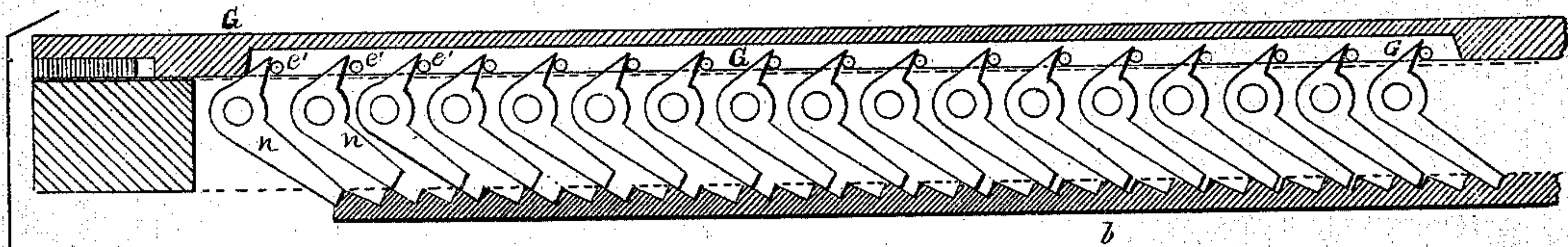
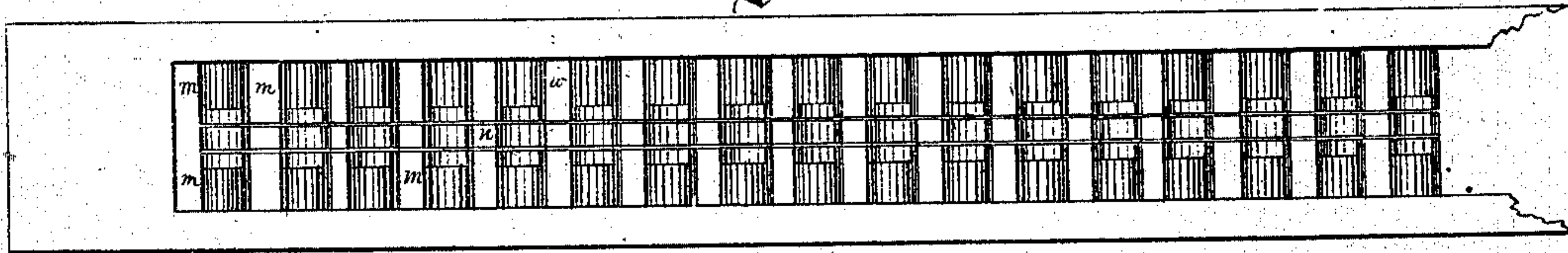


fig. 10.

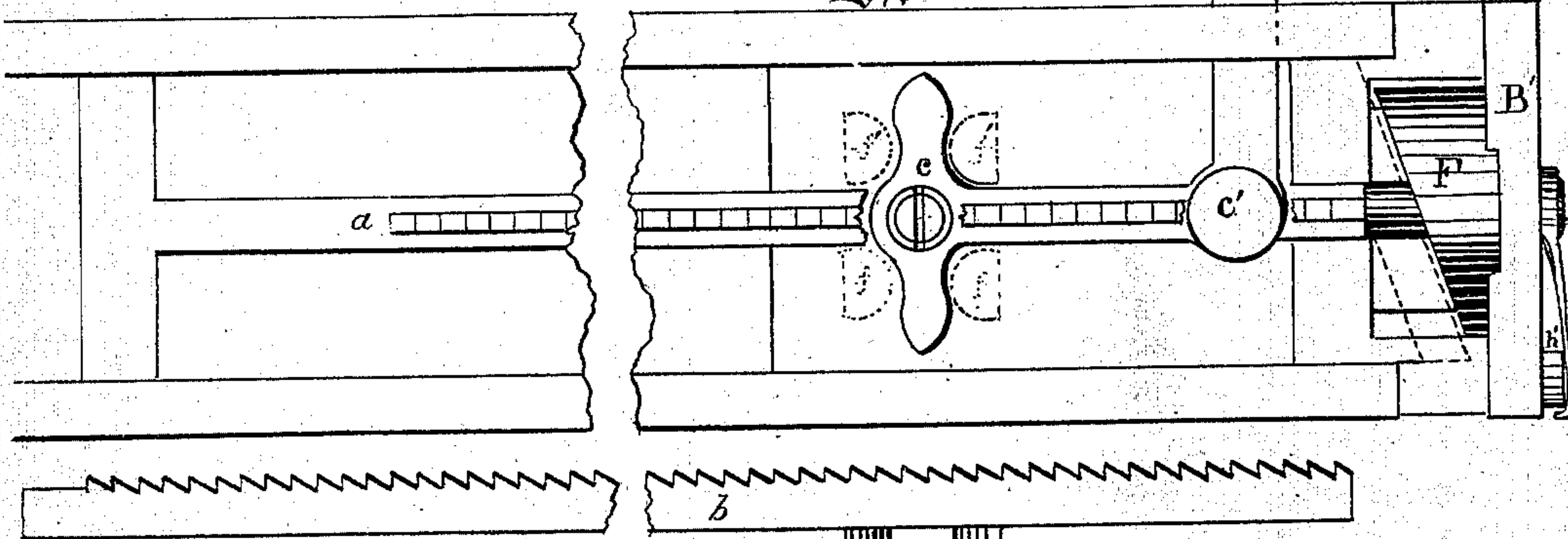


fig. 11

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# UNITED STATES PATENT OFFICE.

ALEXANDER RODGERS, OF MUSKEGON, MICHIGAN.

## IMPROVEMENT IN SAW-MILL HEAD-BLOCKS.

Specification forming part of Letters Patent No. **139,264**, dated May 27, 1873; application filed May 3, 1873.

*To all whom it may concern:*

Be it known that I, ALEXANDER RODGERS, of Muskegon, in the county of Muskegon and State of Michigan, have invented certain new and useful Improvements in Saw-Mill Head-Blocks; 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 it, reference being had to the accompanying drawings which form part of this specification.

This invention relates to that class of machines which are used for the purpose of supporting a saw-log during the process of converting it into lumber; its object being to afford a ready means of adjusting the log, after each cut of the saw, to the proper position for making another cut, the devices being technically named head-blocks; and it consists in the construction and arrangement of the parts, as will be hereinafter fully described, and then set forth in the claims.

Figure 1 is a side view of the head-block resting upon the frame-work of the carriage, and showing one method of arranging the dogs. Fig. 2 shows the opposite side of the same head-block with the side dog and other appurtenances. Fig. 3 is a rear view, showing the head-block upon the carriage; also the position of the setting-shaft. Fig. 4 is an enlarged view, showing one arrangement of devices for gaging the thickness of the lumber. Fig. 5 shows one of the gage-pieces detached. Fig. 6 is a plan view of the base of the head-block, the setting-jack and its appurtenances having been removed. Fig. 7 is a section of Fig. 1 upon the line *x*, and gives a top view of the catch and setting pawls. Fig. 8 is a vertical section of Fig. 7 exhibiting the arrangement of the pawls and their mode of action. Fig. 9 represents a rear view of the head-block with the arrangement of the indicator used for determining the thickness of the lumber. Fig. 10 is a plan view of the base of the block, and shows the arrangement of a portion of the operating mechanism and the spirally-inclined gage. Fig. 11 is a side view of one of the reciprocating racks.

In the accompanying drawings, the log-carriage is represented by the letter A, and may

be of similar construction to those in common use for the same purpose, which are generally constructed of wood, in the shape of a long rectangular frame, provided with suitable track-wheels or other devices for guiding it in a straight line during its reciprocations. B represents the lower portion or base of one of the head-blocks, which are placed transversely upon the carriage, and are preferably formed of a single piece of cast-iron cored out to leave a cavity for the reception of the devices, by means of which the upper portion or setting-jacks C are operated. These jacks are also preferably made of cast-iron, and are constructed to receive the setting and catch pawls, and the mechanism for operating them within a cavity formed in their substance. D is a setting-shaft, which extends throughout the whole length of the carriage, and is supported and turns in bearings secured thereto; it also carries the fusee E, containing a coiled spring, upon which the chain *e* winds, for the purpose of retracting the setting-jacks, to allow another log or cant to be put on the head-blocks after they have been pushed to their furthest forward limit by the setting apparatus, and also keep the jack firmly pressed back in order to prevent it from being thrown too far by the sudden movement of the setting-racks, thus causing inequalities in the thickness of the lumber. It is also provided with a hand-lever, *d*, by which it may be operated, if desired. Within the base of the head-blocks B are arranged two reciprocating racks or ratchets, *b b'*, which move simultaneously in opposite directions, motion being imparted to them by means of a vibrating lever, *c*, which is formed with a T-shaped head at one end, the arms of the T having an ovate form which allows them to pass between and act upon the lugs *f f'* of the racks *b* and *b'* without loss of motion. The vibratory movement is communicated to the lever *c* by a bar, *g'*, which passes from one head-block to the other, and may receive motion from a vertical lever, suitably arranged, or any of the other well-known means in use for a similar purpose. The longitudinal movement of the racks *b b'* is determined by means of a partially-rotating gage-cylinder, F, having a spirally-inclined surface against which one end



of the racks rest, they being so shaped as to conform to the bevel of the incline. The shaft upon which the gage-cylinder is secured passes through the covering-plate  $B'$ , which is secured to the outer end of the base-block  $B$ , and has attached thereto an indicator,  $h$ , which rests upon a graduated arc,  $h'$ . This arc is secured to the plate  $B'$  by screws passing through elongated openings in the lugs  $h''$ , which arrangement allows the position of the arc to be slightly changed.

It will be seen that a movement of this indicator produces a corresponding movement of the gage-cylinder, thus increasing or diminishing the throw of the setting-racks. An arm,  $h'''$ , is also secured to the outer end of the shaft, for the purpose of connecting it with the gage-cylinders of other head-blocks upon the same carriage, in order that the movement of the different cylinders shall be simultaneous, thus regulating the movement of all the setting-jacks by that of the indicator upon a single head-block.

A modification by means of which the same result is produced, but with a greater amount of attention from the operator, as he must adjust each head-block separately, is shown in Figs. 4 and 5, in which  $k$  represents a series of stop-gages of different thicknesses, which are pivoted to the bearing-plate  $K$ , and lock over the shaft  $k'$ , thus forming an abutment against which the racks  $b b'$  strike, the extent of their movement being governed by the thickness and number of stop-gages which are hooked over the shaft  $k'$ . When not in use these gages are turned back upon the plate  $K$ . In this modification the movement of the setting-racks is produced by a bifurcated arm, which is secured to the setting-shaft, and embraces a loose collar upon the shaft  $k'$ , which has a longitudinal movement limited by the nuts  $o o$ . The inner end of this shaft is secured to the racks  $b b'$ ; thus a vibratory motion imparted to the lever  $d$  is converted into a reciprocating movement of the racks. A stationary rack,  $a$ , is secured to the piece  $B$  of the head-block, between the reciprocating racks  $b b'$ , and is provided with a set of teeth, which are placed closer together than those upon the last-named racks, their purpose being, in connection with the catch-pawls  $n$ , to retain the setting-jacks in any position in which they may have been placed by the action of the reciprocating racks  $b b'$ , and setting-pawls  $m$ . These pawls  $m$  are pivoted in pairs, but separated by catch-pawls  $n$ , placed between them upon the same pivots. Above them and within the cavity of the setting-jacks is placed a rack,  $G$ , provided with transverse bars  $e'$ , which catch the upper ends of the pawls, and release them upon the racks when a longitudinal movement is given to it in a proper direction, through the agency of the eccentric  $p$  and lever  $p'$ , thus placing them in such a position as to allow the setting-jack to be freely moved in either direction, as may be required—a reverse movement of the lever

and eccentric dropping the pawls into gear again with both the setting and stationary racks.

Upon one side of the setting-jack is arranged, in bearings  $q q'$ , a short shaft,  $r$ , which has a longitudinal movement in its bearings, controlled by a spiral spring, which encircles it, one of the bearings,  $q'$ , being cut away upon one side, so that, in conjunction with a corresponding protuberance upon one of the shaft-journals, the side dog  $S$  is retained in a vertical position when so placed, until it may be required for use, as in Fig. 3. This dog  $S$  is formed of a metal plate, one end of which is firmly fastened to the shaft  $r$ , and the other provided with a handle. Near the center of the plate is a diagonal slot,  $t'$ , through which passes the shank of the circular dog  $t$ , and in which it is secured by a hand-nut and washer. To hold the log or cant, the device is turned down and the sharp edge of the circular dog  $t$  enters its upper surface, retaining it steadily in place against the jacks. When not in use, it may be placed in a vertical position by the side of the jacks, as shown in Fig. 3. This device is found to be of great service in retaining the material in its proper position after having been cut up until enough remains to form two or more pieces, while the saw is making the last cut through it. Another pair of dogs,  $M M'$ , is placed upon the opposite side of the head-block, arranged and operated as follows: An elongated curved opening or slot,  $N$ , is formed in the web of the jack  $C$ , through which passes a shaft,  $P$ , upon one end of which is secured the hand-lever  $P'$ , and this lever is further provided, at its lower end and concentric to the shaft, with a ratchet,  $z$ , upon which the pawl  $z'$  acts. The other end of the shaft  $P$ , after passing through the curved slot  $N$ , carries, first, a lever,  $R$ , the lower end of which is pivoted to the setting-jack at  $x'$ , the other end being secured to the upper dog  $M$  at  $x''$  by another pivot, and at the outer end of the shaft  $P$  is placed the chain-tightener  $T$ , which is formed of two rectangular plates united at their centers by the shaft and at their angles by a stud, which is encircled by a thimble or sheave. A chain,  $v$ , is attached to the lower dog  $M'$  by a link  $n'$ ; it then passes upward and around one of the pair of sheaves  $U$ , which are secured to the jack  $C$  by the bracket  $U'$ , and thence through the chain-tightener  $T$  above its shaft and around a sheave,  $T'$ , which is supported by the bracket  $Y$ ; thence returning through the tightener below its shaft and around the second sheave of the pair marked  $U$  and upward to its place of attachment upon the dog  $M$ , to which it is secured by the strap  $m'$ . This method of arranging the dogs enables the operator to cause both dogs to enter the log or cant at its top and bottom simultaneously, as, by means of the chain-tightener, operated by the lever  $P'$ , and acting upon the chain  $v$ , he is enabled to bring a very heavy strain upon them, fully sufficient to cause them



to enter the log or cant to such a depth as will insure its being held firmly in position. To release these dogs, the pawl  $z'$  is lifted, when the chain-tightener releases the chain; then a pressure upon the handle  $V$  of the upper dog will at once release it, and the lower dog  $M'$  will be forced out of the log by the spring  $y$ .  $v''$  is a guide for the lower dog, which is secured to the setting-jack, and prevents its displacement by lateral strains.

I am aware that wire springs wound upon the setting-shaft have been used for the purpose of retracting the setting-jacks of saw-mill head-blocks; also, that a reciprocating rack has been used for moving the same forward; but such construction I do not claim.

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

1. The dogs  $N$  and  $M'$ , in combination with their operating mechanism and the setting-jack  $C$ , substantially as and for the purpose specified.

2. The chain-tightener  $T$ , constructed and operated substantially as herein shown and described.

3. The side-dog  $S$ , constructed and operating substantially as and for the purpose herein set forth.

4. The setting-shaft  $D$ , fusee  $E$ , and chain  $e$ , in combination with the setting-jack  $C$ , substantially as and for the purpose specified.

5. The gage-cylinder  $F$ , in combination with the setting-racks  $b$  and  $b'$ , and the indicator  $h$ , and movable arc  $h'$ , as and for the purpose described.

6. The reciprocating racks  $b$  and  $b'$ , and their operating mechanism in combination with the stationary rack  $a$ , substantially as specified.

7. The rack  $G$ , constructed as shown and described, in combination with the eccentric  $p$  and pawls  $n$   $m$ , as set forth.

8. The setting-jack  $C$ , provided with the two sets of dogs  $S$  and  $M$   $M'$ , and the mechanism for operating the same, in combination with the block  $B$  and carriage  $A$ , all the parts being constructed and operating substantially as and for the purpose specified.

In testimony that I claim the foregoing, I have hereunto set my hand this 1st day of May, 1873.

ALEXANDER RODGERS.

Witnesses:

W. R. SINGLETON,  
W. K. CHANDLER.