

(No Model.)

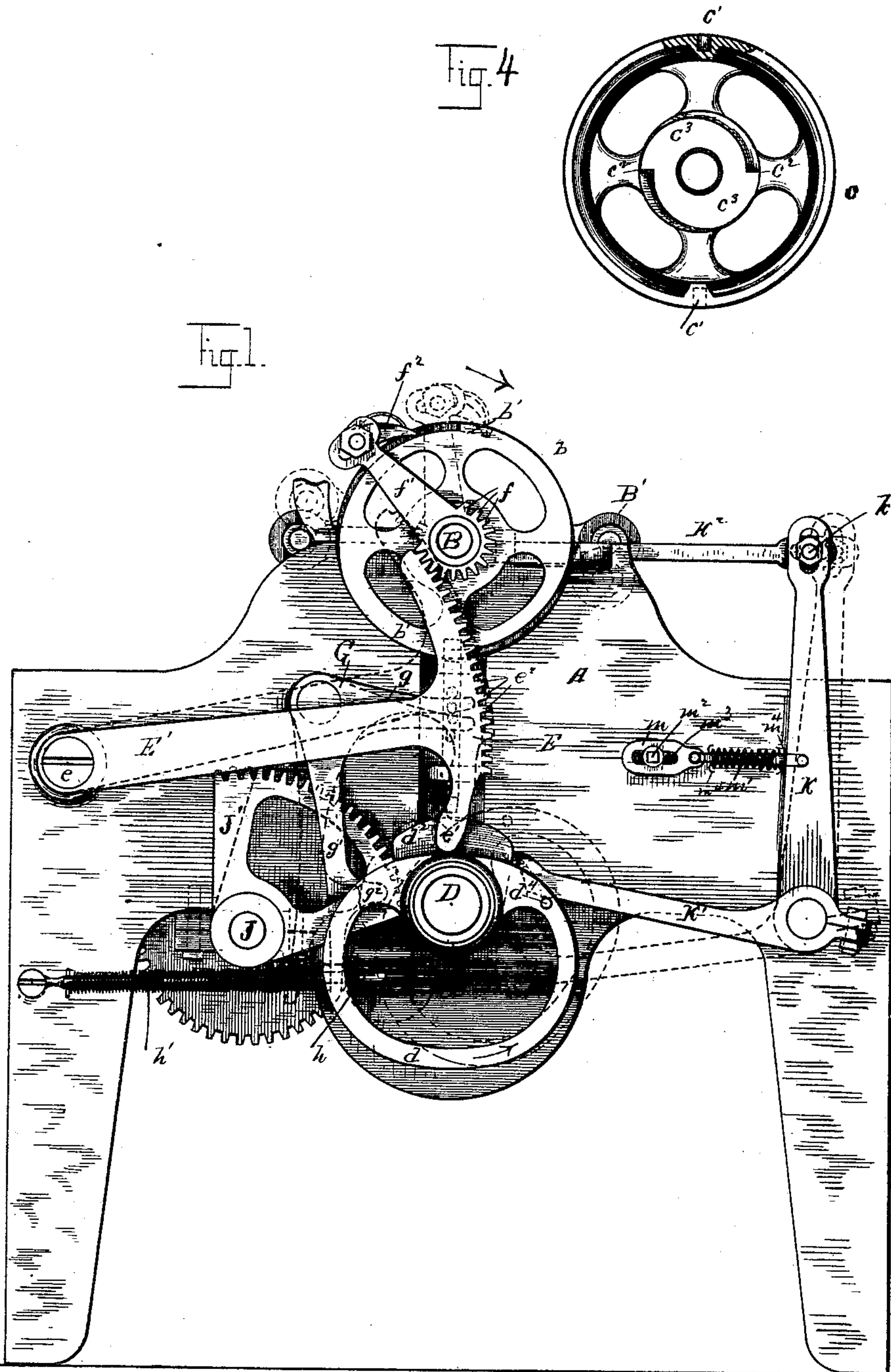
2 Sheets—Sheet 1.

J. A. BIDWELL.

MACHINE FOR SLOTTING SCREW HEADS.

No. 407,155.

Patented July 16, 1889.



Witnesses

C. B. Nash
H. H. Fay

Inventor

J. A. Bidwell
By his Attorney
Thos. D. Hall

(No Model.)

2 Sheets—Sheet 2.

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Fig. 2.

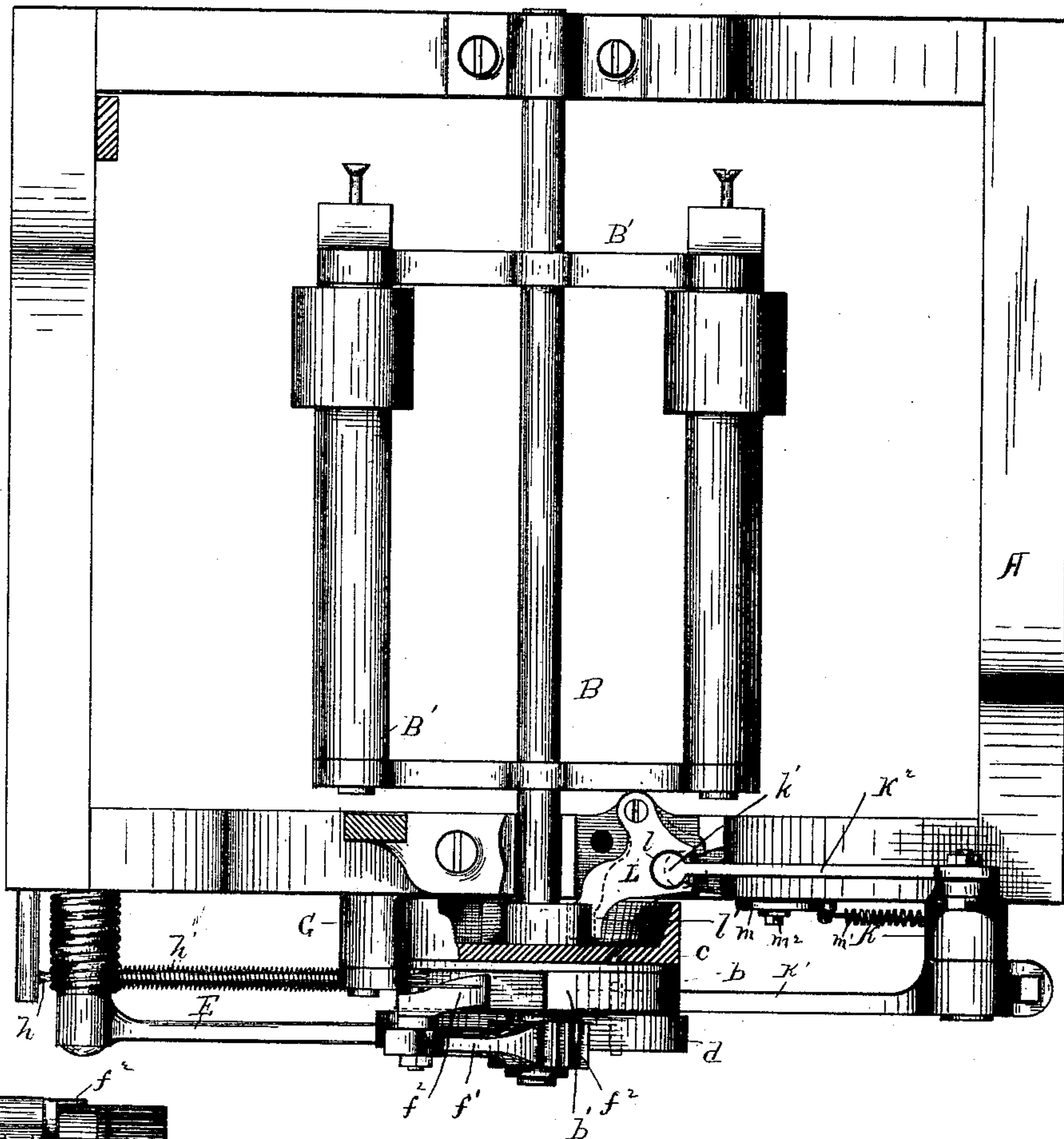
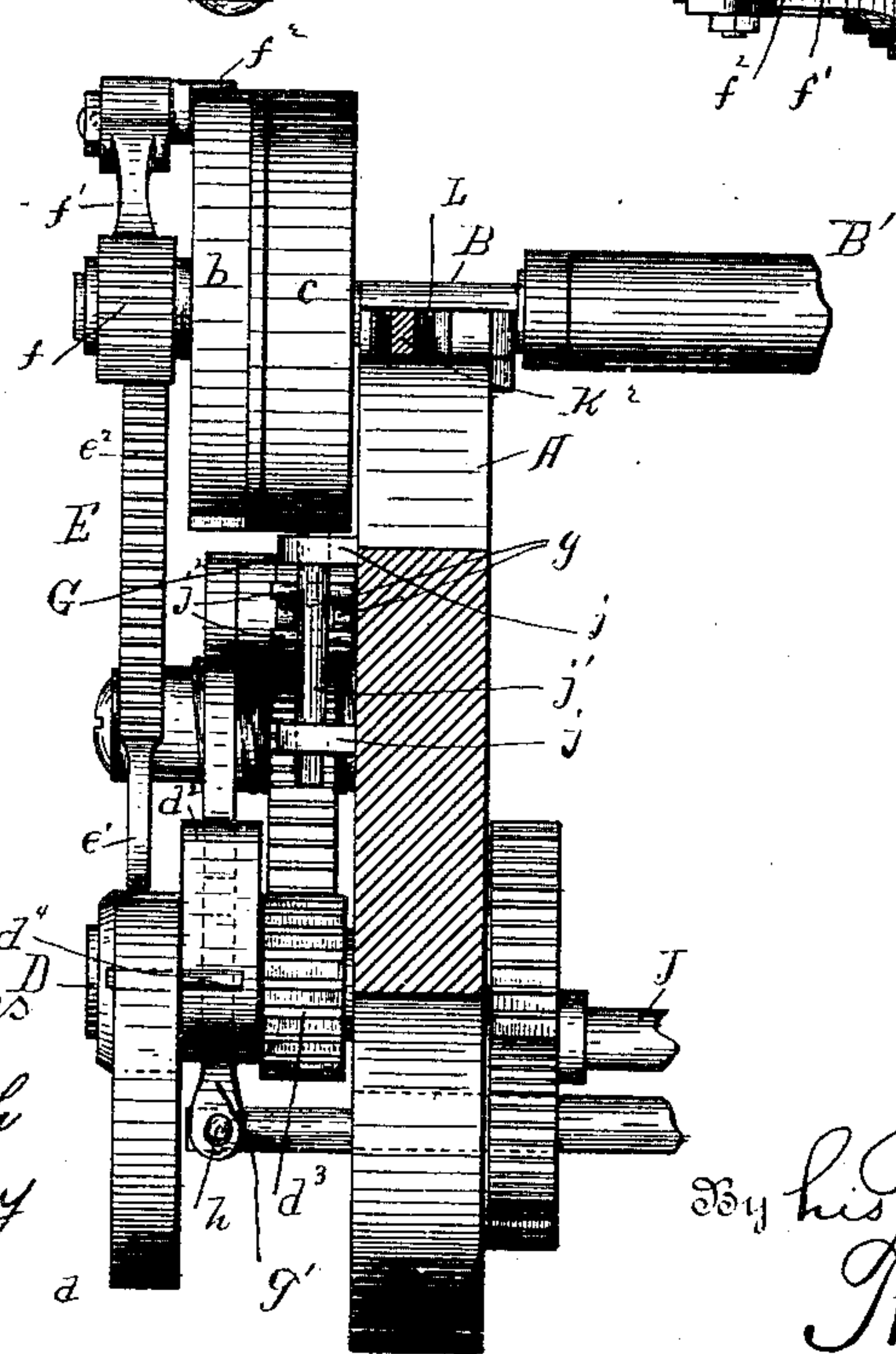


Fig. 3.



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UNITED STATES PATENT OFFICE.

JASON A. BIDWELL, OF CLEVELAND, OHIO.

MACHINE FOR SLOTTING SCREW-HEADS.

SPECIFICATION forming part of Letters Patent No. 407,155, dated July 16, 1889.

Application filed June 9, 1888. Serial No. 276,657. (No model.)

To all whom it may concern:

Be it known that I, JASON A. BIDWELL, a citizen of the United States, resident of Cleveland, county of Cuyahoga, and State of Ohio, have invented certain new and useful Improvements in Screw-Machines, of which the following is a specification, the principle of the invention being herein explained and the best mode in which I have contemplated applying that principle, so as to distinguish it from other inventions.

There are employed in the screw-making industry three distinct machines: First, a machine for forming the heads of the screw-blanks. Second, a machine employed to turn this head, cut a groove across the face, and remove the burr produced by cutting the slot. This machine is called a "shaver and nicker." Third, a machine for pointing the blanks and worming a thread thereon. This machine is styled a "threader." These three machines constitute a set of wood-screw machines.

My invention is confined to the second machine of the series—namely, the shaver and nicker. In this machine the rough-headed blanks are seized, one at a time, by a pair of rapidly-revolving spindles, and while thus held are subjected to three distinct operations—viz., turning the head, after which the spindle makes one-half of a revolution and the blank is subjected to the action of a tool which forms a groove or slot in the face of the head. After this the spindle again rotates a half-revolution, and the burr caused by the action of the grooving or slotting tool is removed and the finished blank released. While the blank is thus being operated upon by either of these two cutting-tools the gripping-spindles or the yoke in which they are mounted must be securely fastened, and when the fastening is removed the gripping-mandrels must be free to make a half-revolution and then stop at a given point, so as to allow the cutting-tools accurately to do their work. Here it is that my invention is applied.

It consists in the combination, as herein-after described and claimed, of a stop that engages with cams on the hub of a locking-wheel secured on the semi-rotating shaft on which the gripping-mandrels are mounted. This stop prevents all further rotation or movement of the yoke and at once allows the

pin to drop into the opening prepared to receive it and hold the gripping-mandrels and their component parts rigidly in position until the proper mechanism again returns and loosens them, when another semi-revolution is made, whereupon the stop again operates.

Referring to the drawings, Figure 1 is an end elevation view of the machine. Fig. 2 is a plan view of the same. Fig. 3 is a vertical longitudinal section. Fig. 4 is a detail view of the inner face of the wheel on which my improved stop operates.

It will be understood that the foregoing views are not of the complete and entire machine, but are of such parts as are necessary to show the operation of my improved stop.

A is the machine-bed. Journaled therein longitudinally is the shaft B. Rigidly secured to the outer extremity of said shaft are the concentric wheels *b c*, the former provided with double cam portions *b'* on its outer periphery, and the latter provided with the cams *c'* on the hub of its face adjacent to the machine, while the outer periphery of the latter is provided with the two pin-holes *c'* opposite one another and located on a diameter at right angles to the diameter in which the end walls *c'* of the cams *c'* are located. On the pivot D, secured in the side of the machine, I journal a double cam having the swell portions *d d'* and the pinion *d'*, said cam *d* provided with a pin *d'*. Segment-gear E has its arm E' pivoted at *e*, and its downwardly-projecting finger *e'* engaging with cam *d*, the gear-teeth *e'* of said segment engaging with gear-teeth *f* of the lever-pinion *f'*. Pawl *f'* is pivoted to the upper end of said lever-pinion and engages with cam-wheel *b*. Pivoted in the side of the machine-bed is the bell-crank lever G, having the bifurcated upper arm *g* and the slotted lower arm *g'*. Formed at right angles to the arm *g'* is the lug *g'*, that engages with the swell portion *d'*. Rod *h*, furnished with spiral spring *h'*, is secured parallel to the side of the machine and passes through the slotted lower arm *g'* of the bell-crank G, said spiral spring exerting a pressure against said lower arm.

Shaft J is journaled longitudinally on the machine and connected with any suitable driving-power. Secured to the outer extremity of said shaft is the segment-gear J',

that meshes with pinion d^3 . Having vertical sliding bearing within the slotted ears j , that are secured to the side of the machine, is the pin j' , provided with cross-pins j^2 , that engage
5 with the bifurcated extremity of the bell-crank lever G. Secured to the shaft B is revolving yoke B', that requires no detail description at this time.

Pivoted to the machine are the levers K K',
10 rigidly secured together at their pivotal point, lever K' engaging with pin d^4 and cam d^2 at certain portions of the latter's rotation. Adjustably secured to the upper portion of lever K by bolt k is the lever K², provided at
15 its opposite extremity with circular bearing k' , that has knuckle-joint bearing in the opening l of the pivotal lever or stop L, that is pivoted to the machine-bed. The opposite extremity l' of the lever-stop L engages with
20 the end wall c^2 of the cams on wheel c . Lever m is adjustably pivoted to the machine by means of bolt m^2 passing through slot m^3 . Pivoted, respectively, to said lever K are the wires m^4 , that engage at their extremities with
25 spiral spring m' .

The function performed by the stop L is merely to stop the rotation of the yoke mechanism by engaging with the wall c^2 of the cam c^3 . While in this position pin j' passes into
30 the opening in wheel c —that is, the stop stops further forward movement of the wheel and holds it until the pin is forced into position and locks it against movement in either direction, the function of the two being supple-
35 mental to each other.

The operation of the machine is as follows: We will assume that the machine is in the position as indicated by the full lines in Fig. 1, and that the rotary yoke is in locked sta-
40 tionary position. The shaft J rotates, carrying with it the segment J', that engages with pinion d^3 , which being rigid with cams d and d^2 causes them to move and the pin d^4 strikes

against lever K' and forces it upward. This lever is rigid with lever K, that operates to
45 draw back lever K². This in turn withdraws pivotal lever-stop L from contact with end wall c^2 of the cam c^3 , and the wheel c is then free to rotate as soon as the pin j' is freed from
50 contact with said wheel. This is brought about by the cam d^2 engaging with and forcing backward lug g^2 of the bell-crank lever G, the upper portion of which forces pin j' down-
55 ward. The cam d , continuing its rotation by means of segmental lever-gearing E, lever-pinion f , and pawl f^2 , rotates the wheels $b c$ and yoke B'; but meanwhile the lever K' has
60 dropped off from the pin d^4 and the force of the spring m' has caused lever-stop L to be pressed tightly against cam c^3 , so that when the half-revolution of yoke B' is completed it
65 engages with end wall c^2 and holds the yoke rigid against further movement and affords the pin an opportunity to engage with opening in wheel c .

I claim—

1. In a machine for shaving, slotting, and reshaving the heads of wood-screw blanks, the combination, with pin j' and stop L, of wheel
70 c , whose outer periphery is provided with pin-holes c' and whose hub is provided with circular cams c^3 , having end walls c^2 , substantially as set forth.

2. In a screw-machine, the combination of a rotary shaft B, carrying cam-wheel c , stop L
75 engaging with said wheel, rotary cam d , and levers K K' K², connecting said cam and stop L, substantially as set forth.

In testimony that I claim the foregoing to be my invention, I have hereunto set my hand, 80
this 28th day of May, A. D. 1888.

JASON A. BIDWELL.

Witnesses:

J. B. FAY,
E. J. CLIMO.