

(No Model.)

2 Sheets—Sheet 1.

W. H. BENNETT.
TENONING MACHINE.

No. 474,515.

Patented May 10, 1892.

Fig. 1.

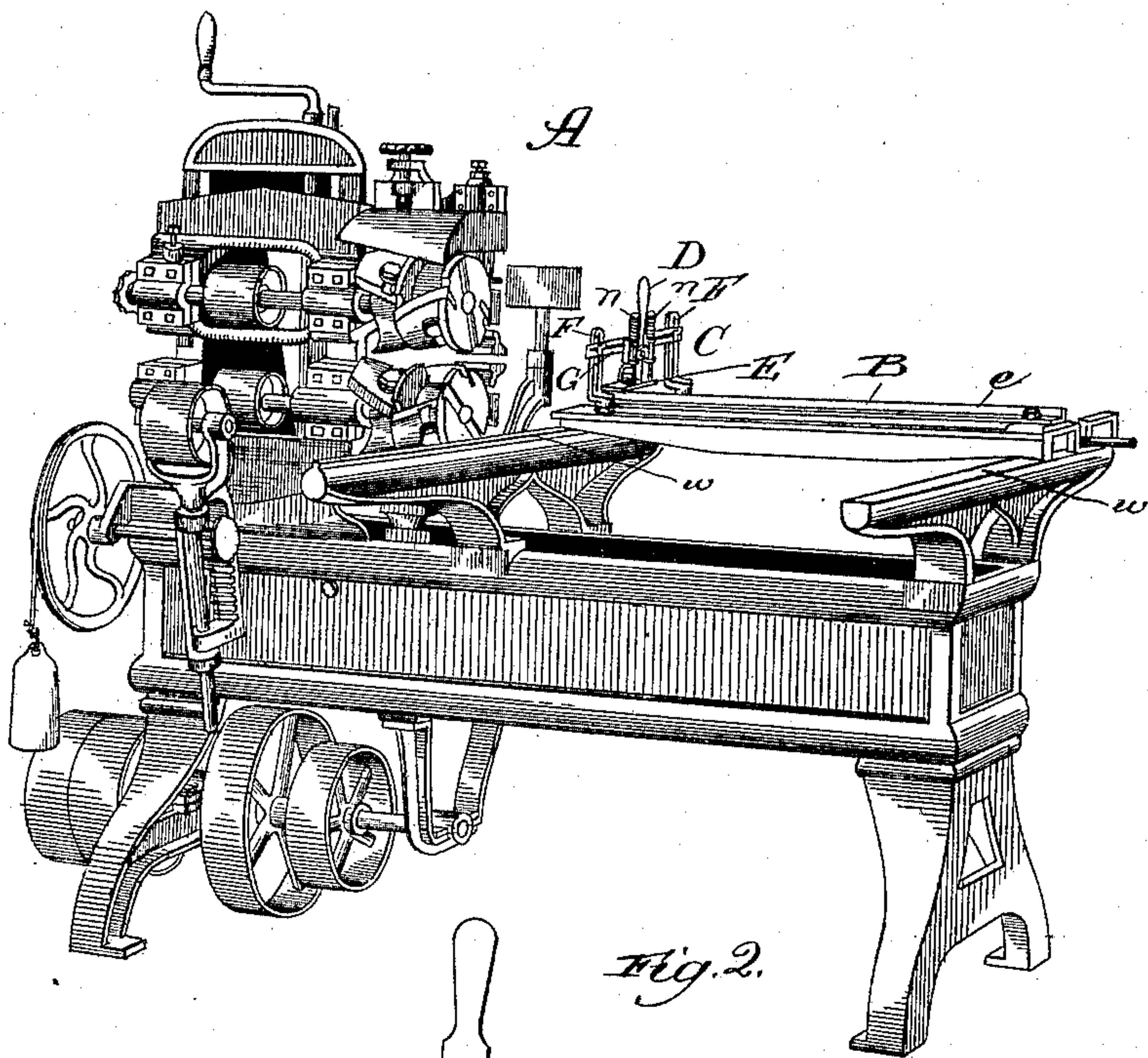
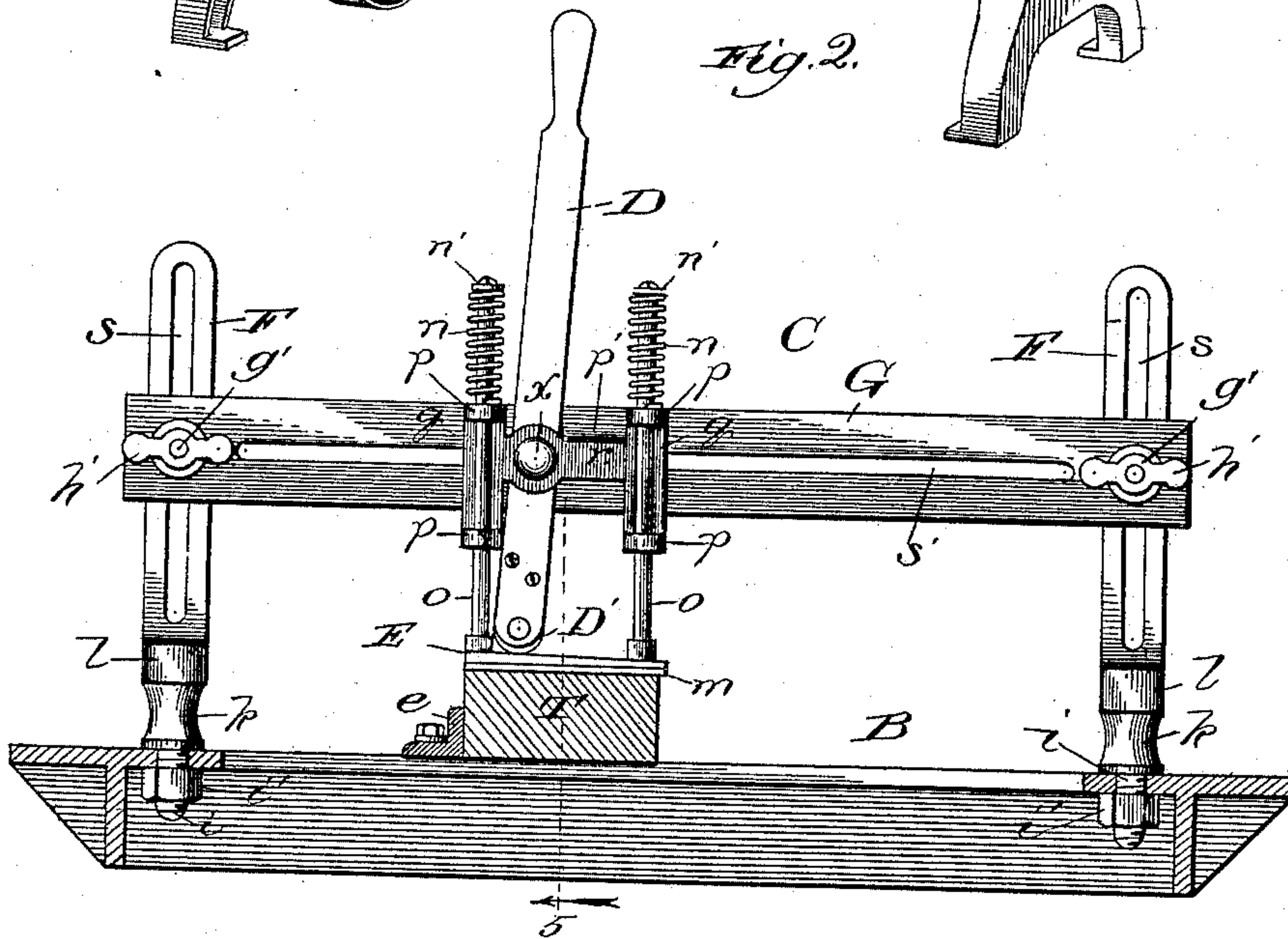


Fig. 2.



Witnesses:

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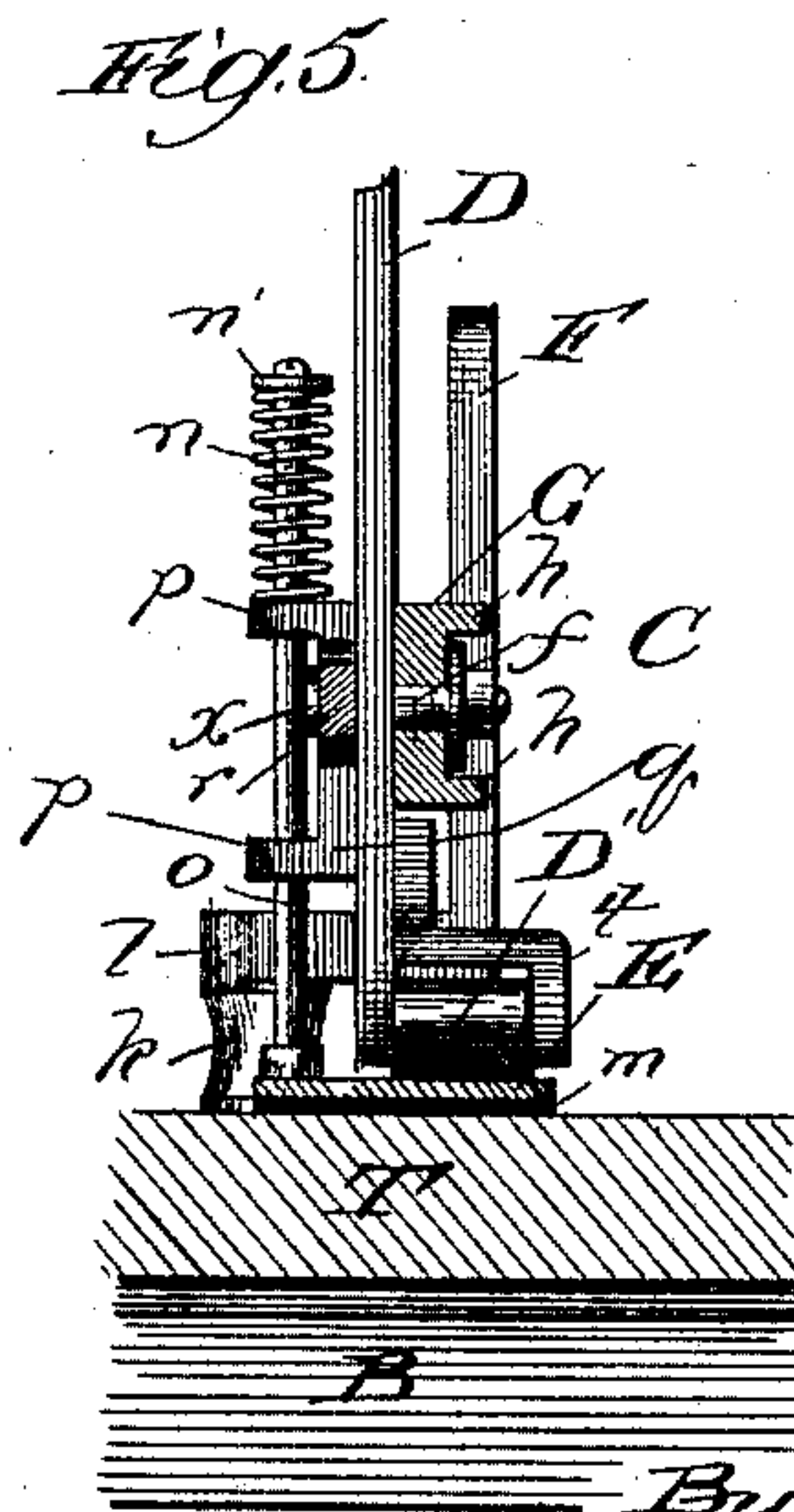
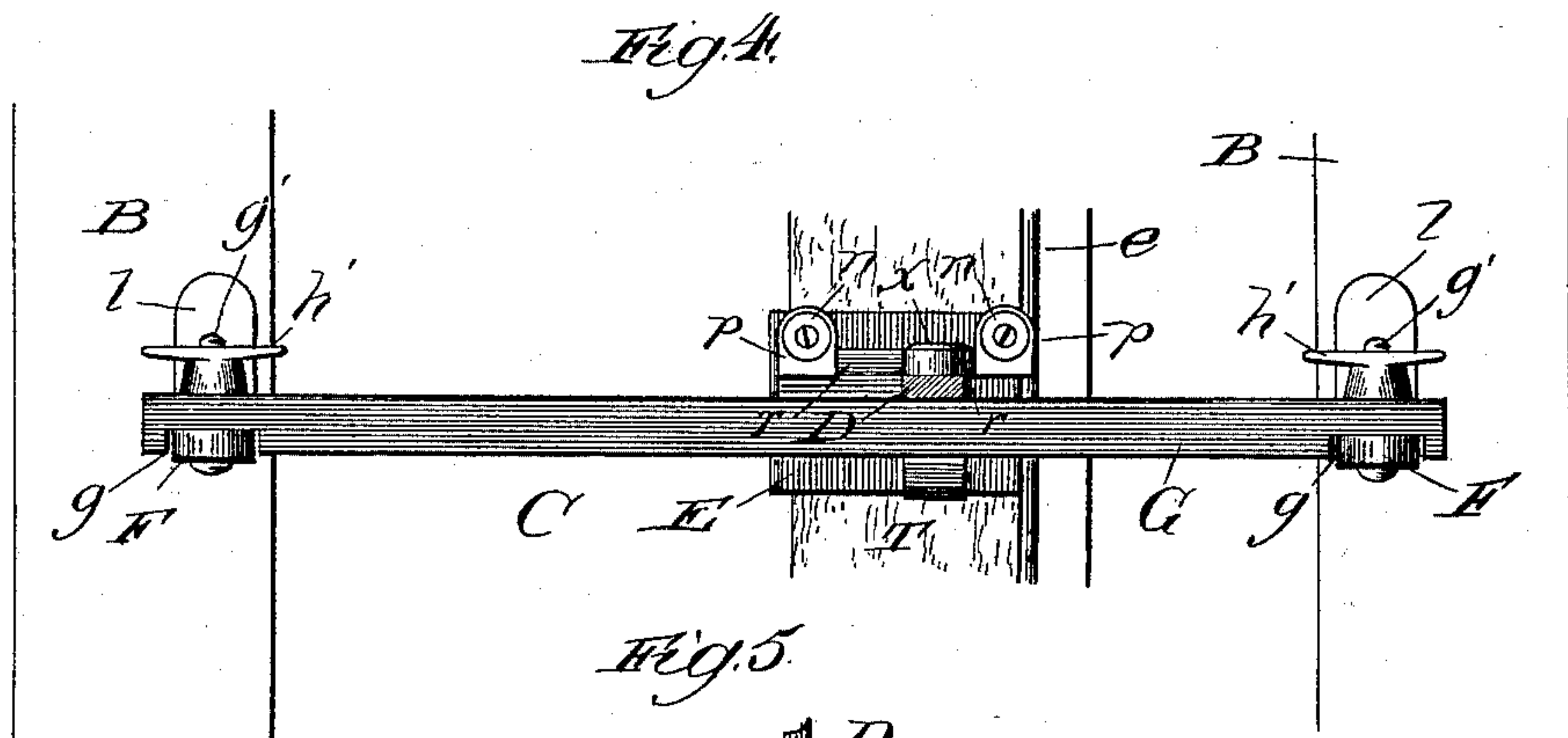
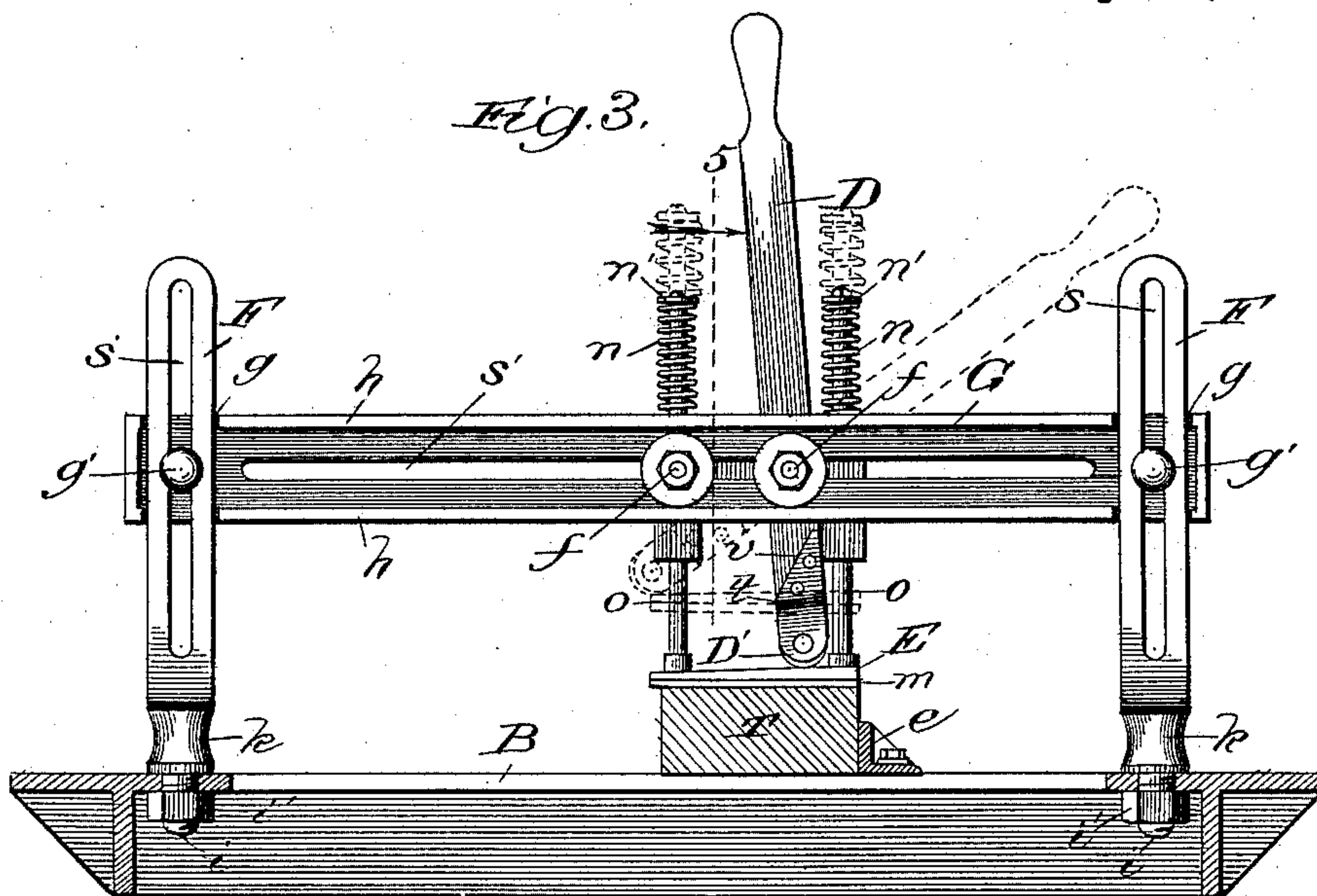
(No Model.)

2 Sheets—Sheet 2.

W. H. BENNETT.
TENONING MACHINE.

No. 474,515.

Patented May 10, 1892.



Witnesses:
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UNITED STATES PATENT OFFICE.

WILLIAM H. BENNETT, OF CHICAGO, ILLINOIS, ASSIGNOR TO CORNELIA E. BENNETT AND ALMIN F. BARTLETT.

TENONING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 474,515, dated May 10, 1892.

Application filed October 24, 1890. Renewed February 8, 1892. Serial No. 420,783. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM H. BENNETT, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a new and useful Improvement in Tenoning-Machines, of which the following is a specification.

My invention relates more particularly stated to an improvement in the clamp portion forming an attachment of a tenoning-machine and employed to hold firmly on the horizontally-movable platform or carriage the timber while the cutting mechanism is forming a tenon thereon.

My object is to provide a clamping attachment for a tenoning-machine which shall possess the quality of being readily and accurately adjustable to any size of tenoning-machine.

My further object is to provide a generally-improved construction of tenoning-machine clamp.

In the accompanying drawings, Figure 1 is a perspective view of a known form of tenoning-machine provided with my improved clamping attachment; Fig. 2, a view in elevation, partly sectional and enlarged, of my improved clamp represented as in operation; Fig. 3, a similar view of the clamp, showing the side thereof opposite that presented in Fig. 2; Fig. 4, a plan view of the same partly in section and showing parts of the machine to which the clamp is applied as broken; and Fig. 5, a section taken on the line 5 of Fig. 3 and viewed in the direction of the arrow.

A denotes a tenoning-machine which, with the exception of the clamp, involves no features of my invention, being well known and illustrated merely to render the more readily comprehensible the construction and manner of application of my improved clamping attachment C. Hence description of the details of the machine is not herein necessary.

The clamp C comprises, generally stated, a lever fulcrumed on a suitable support to permit it to be turned to or about to a perpendicular position with relation to the work, and carrying in its bearing end an anti-friction roller.

Following is a description of my improved clamp in all its details, as illustrated, and

which are believed to produce the best construction for the clamp.

D is a lever fulcrumed at x (thus between its ends) on a bearing-bar r , having at each end and at right angles to it a bearing-bar q , provided at its upper and lower ends with perforated lugs p , one of which is extended laterally or lengthwise of the bar r to form a stop p' for the lever D, against its being turned farther than required or desirable beyond a position perpendicular to the bar r . Rods o extend through the lugs p on the respective bars q and beyond the opposite ends of the latter, being elastically supported by springs n , confined around them between stops n' on their upper ends and the upper lugs p . To the lower ends of the rods o I secure a bearing-plate E, which should taper on its upper side toward one end, as shown, thus to render it wedge-shaped, and to the base of which may be fastened a corresponding plate m , of rubber, leather, or the like, to afford a yielding lower bearing-surface on the plate E. On the lower or bearing end of the lever D is journaled a roller D' to bear against the plate E, being journaled at one end in the lever and at its opposite end in a bracket t , extending laterally from a face of the lever, and having one edge beveled, as shown at v , Fig. 3, to afford a stop to prevent the lever from dropping in releasing the plate E from its bearing effect below a position in which it is handy to the operator.

The support for the clamping-tool proper, thus described, may involve any suitable construction; but I prefer so to form it that the clamping-tool may by means thereof be readily and accurately adjusted for its operation to different positions transversely of the carriage or bed B of the tenoning-machine, and to different elevations with relation to the bed-surface, and that the support shall be readily adjustable to fit carriages B of different widths. Accordingly I provide the longitudinally-slotted standards F, one for each end of the cross-bar G and each provided with a foot l , from the outer end of which depends a rest k , terminating in a stem i , threaded to permit the application to it of a nut i' . The cross-bar G is also slotted longi-

tudinally and provided with stiffening-flanges *h*, extending horizontally from its longitudinal edges, and near its opposite ends the flanged side of the bar *G* is recessed, as shown at *g*, to admit the standards *F*, the recesses *g*, or either of them, being wider than the standards to permit the latter to be arranged closer together or farther apart, and thus adapt the clamp to fit carriages *B* of different widths. The bar *G* is fastened to the standards *F* by bolts *g'*, passed through the slot *s* in the standards and through the bar *G* at its recesses *g*, and fastened with thumb-nuts *h'*. The clamping-tool proper is supported on the bar *G* by bolts *f*, passed through the slots *s'* in the bar from the bearing-bar *r*, one of which screws *f* forms the fulcrum for the lever *D*.

The clamp *C* is fastened, as shown in Fig. 1, on the inner end of the carriage *B* (which is movable on the ways *w*) by inserting the threaded stems *i* of the standards *F* through holes suitably provided in the carriage-bed and securing them by the nuts *i'*. The work or timber *T* to be tenoned is adjusted on the carriage *B*, against the gage *e*, and held by the clamp by turning the lever *D* to or somewhat beyond a perpendicular position far enough to be impeded by the stop *p'*, and so turning the lever causes its roller *D'* to bear against the plate *E* to force and hold it firmly against the work, the wedge shape of the upper surface of the plate *E* tending to increase the pressure of the lever as its roller is moved up the incline of the surface. When the work *T* is to be released, the lever *D* is turned to release the plate *E*, (being obstructed against turning farther than necessary by the stop *v* striking the under side of the bar *G*,) and the plate *E*, being thus released from the work, is raised by the resilient action of the springs *n*, thus automatically following the roller *D'* as it rises.

To adjust the clamp to the work *T*, the bar *G* may not only be raised and lowered on the standards *F*, as already described, but the clamping-tool proper may be moved farther toward one side or the other of the work on loosening the nuts of the screws *f* and sliding the tool to the desired positions on the cross-bar.

The clamping-tool proper (meaning thereby that portion of my device which is directly supported on the bar *r*) may be otherwise supported and adjustable than by means of the slotted bar *G*, and the standards *F* need not involve the exact construction shown and described for supporting the bar *G* and rendering it adjustable. Hence I do not limit my improvement to the details of construction set forth of these features of my device. The clamping-tool proper may also be modified as to details without thereby departing from my invention, the essential features of the tool being the lever *D*, fulcrumed on a support to be turned to or toward a perpendicular posi-

tion with relation to the work *T*, and carrying an anti-friction bearing-roller *D'*.

What I claim as new, and desire to secure by Letters Patent, is—

1. In combination with the carriage of a tenoning-machine, a clamp comprising a support secured to the said carriage, and a clamping-tool secured to the support and formed with an elastically-supported plate *E* to bear down upon and hold the work against the carriage and beveled on its upper side toward one end, and a lever *D*, fulcrumed to the support over the bearing-plate and carrying at its lower end an anti-friction roller *D'* and adapted to be turned toward a perpendicular position with its roller against the upper side of the bearing-plate to force and wedge the plate down upon the work, substantially as described.

2. In a clamp for a tenoning-machine, the combination of a support to be secured to the carriage of the machine, and a clamping-tool adjustably secured to the support and comprising a bar *r*, having end bearing-bars *q*, supporting reciprocating rods *o*, sustained by springs *n* and carrying a bearing-plate *E*, and a lever *D*, fulcrumed on the bar *r* and carrying at its bearing end an anti-friction roller *D'*, substantially as described.

3. In a clamp for a tenoning-machine, the combination of a support to be secured to the carriage of the machine and comprising standards, and a cross-bar adjustably connected toward its opposite ends with the standards, and a clamping-tool secured to the cross-bar, the cross-bar being rigid in its adjusted position and the clamp being movable to operate it on the cross-bar, substantially as described.

4. In a clamp for a tenoning-machine, the combination of a support to be secured to the carriage of the machine and comprising standards *F*, and a cross-bar *G*, adjustably connected toward its opposite ends with the standards, and a clamping-tool secured to the cross-bar and having a lever *D*, carrying an anti-friction roller *D'* at its bearing end, and a reciprocating bearing-plate *E*, controlled by the lever, substantially as described.

5. In a clamp for a tenoning-machine, the combination of a support to be secured to the carriage of the machine and comprising longitudinally-slotted standards *F*, and a longitudinally-slotted cross-bar *G*, adjustably connected at its opposite ends with the standards, and a clamping-tool comprising a bar *r*, adjustably connected with the cross-bar *G* and having end bearing-bars *q*, supporting reciprocating rods *o*, sustained by springs *n* and carrying a bearing-plate *E*, and a lever *D*, carrying at its bearing end an anti-friction roller *D'*, substantially as and for the purpose set forth.

6. A clamp *C* for a tenoning-machine, comprising, in combination, slotted standards *F*, to be secured to the carriage of the machine, a slotted cross-bar *G*, recessed near its oppo-

site ends to admit the standards and adjust-
ably secured thereto, and a clamping-tool
comprising a bar *r*, adjustably supported at
the slot of the bar *G* and having end bearing-
5 bars *q*, supporting-rods *o*, sustained by springs
n, a beveled plate *E*, secured to the rods *o*,
and a lever *D*, carrying an anti-friction roller

D' at its bearing end, the whole being con-
structed and arranged to operate substan-
tially as described.

WILLIAM H. BENNETT.

In presence of—

CHAS. E. GAYLORD,

M. J. FROST.