

No. 768,252.

PATENTED AUG. 23, 1904.

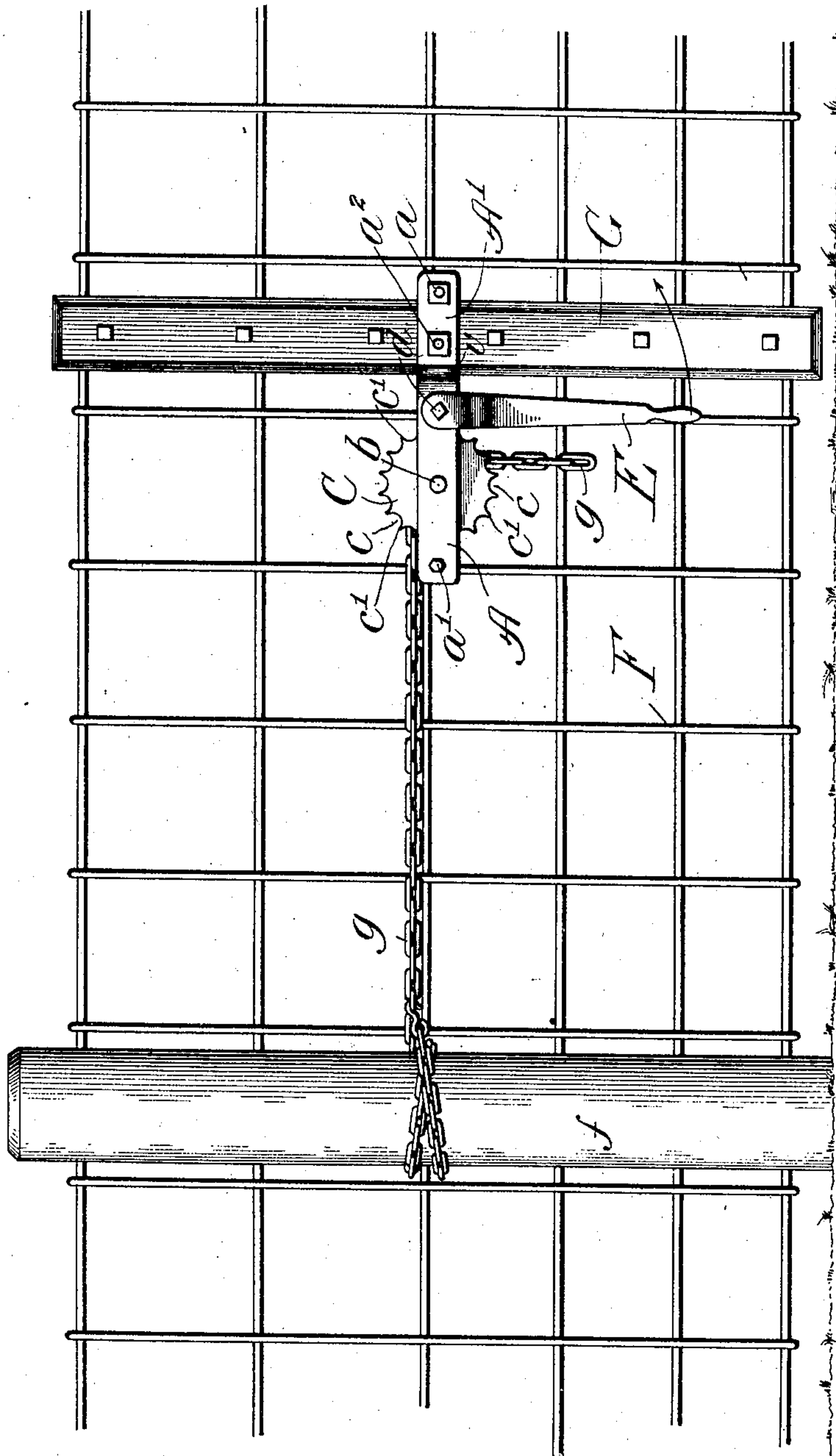
I. M. WARNER.
WIRE STRETCHER.

APPLICATION FILED MAY 31, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.



Witnesses:
Edw. C. Gaylord,
John Enders.

Inventor:
Isaac M. Warner,
By Dymfuth, Dymfuth & See,
Att'y's.

No. 768,252.

PATENTED AUG. 23, 1904.

I. M. WARNER.
WIRE STRETCHER.

APPLICATION FILED MAY 31, 1904.

NO MODEL.

2 SHEETS—SHEET 2.

Fig. 2.

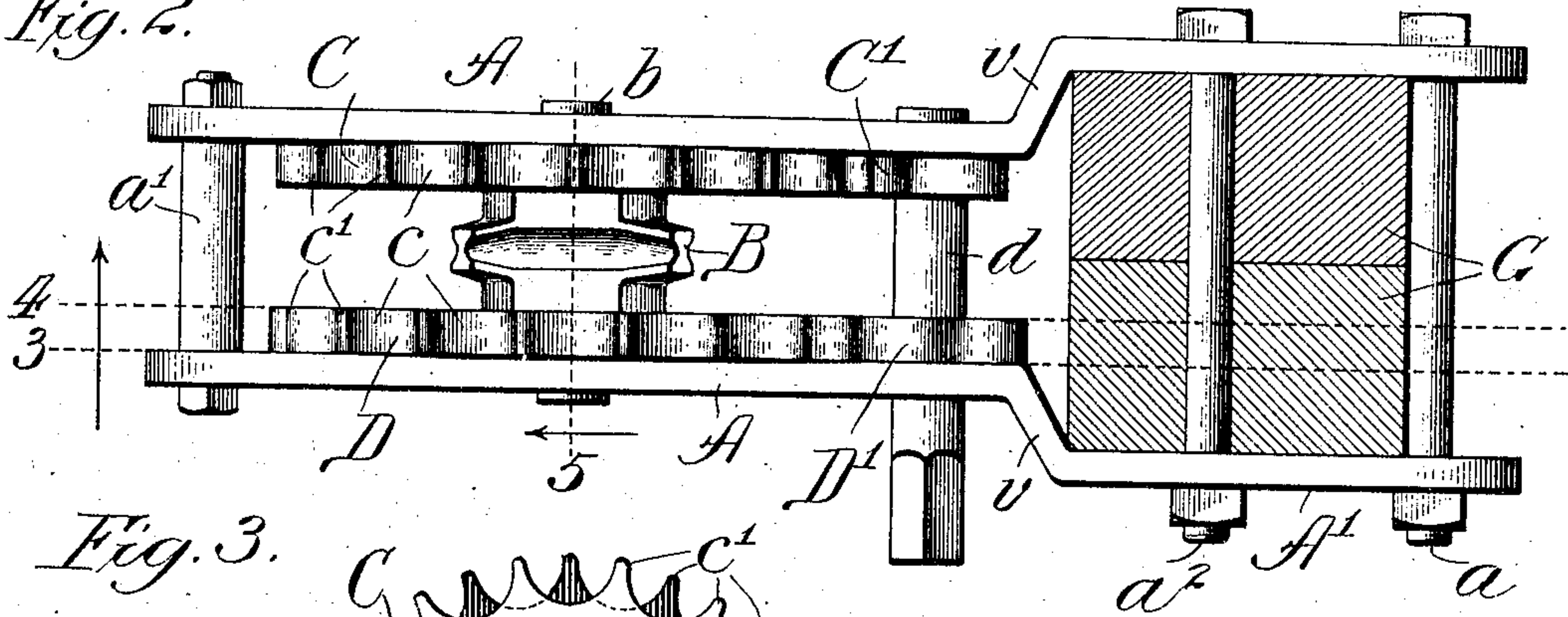


Fig. 3.

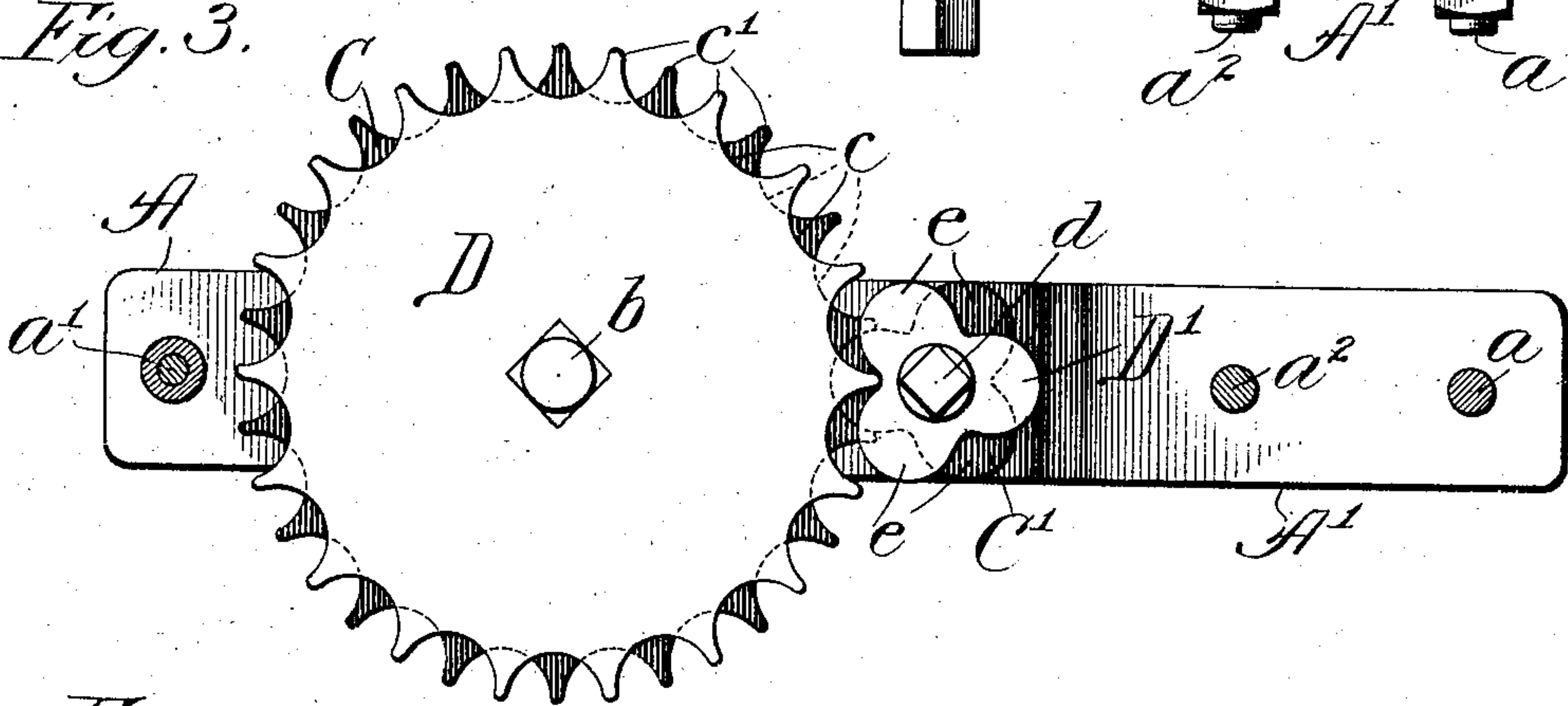


Fig. 4.

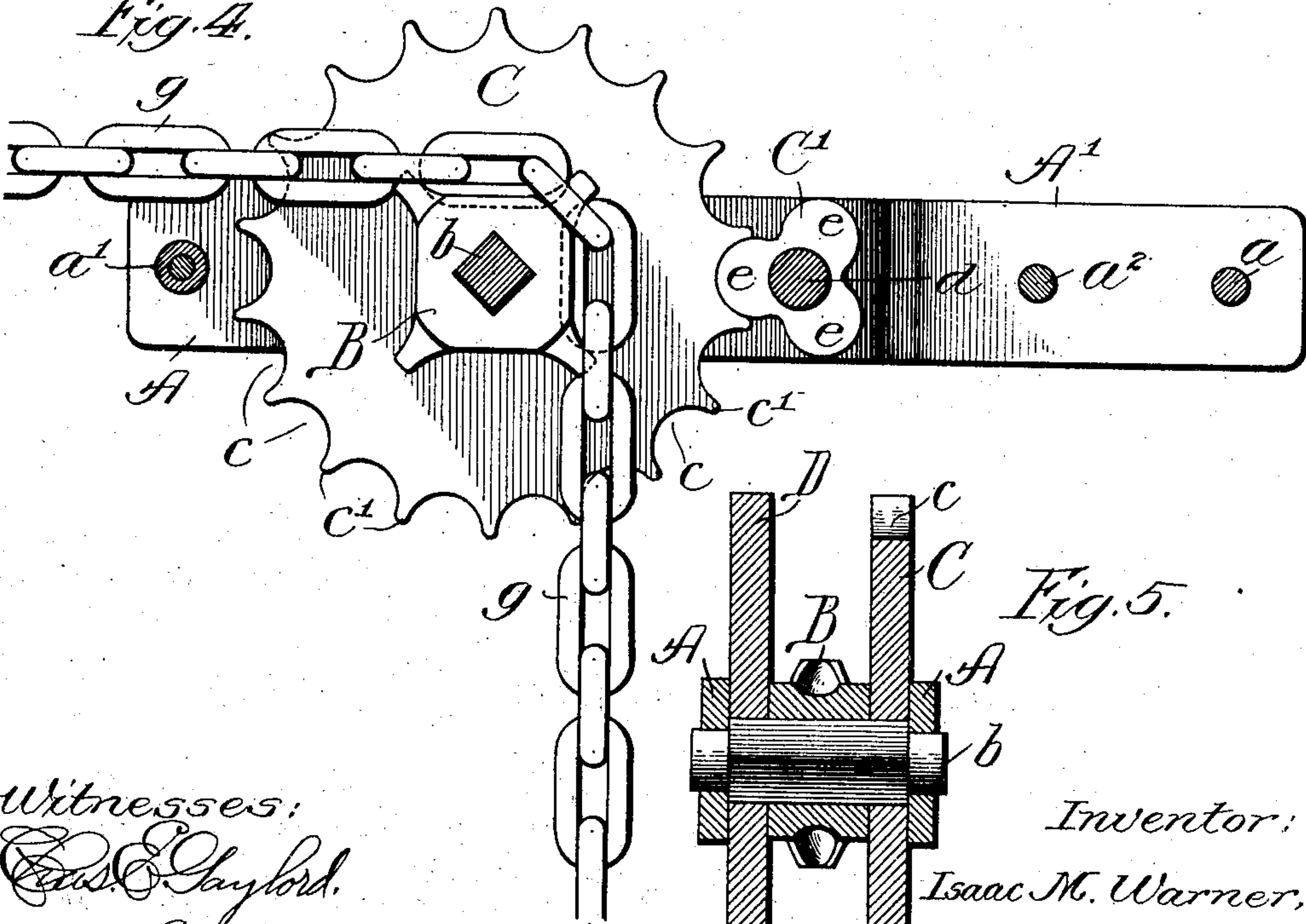
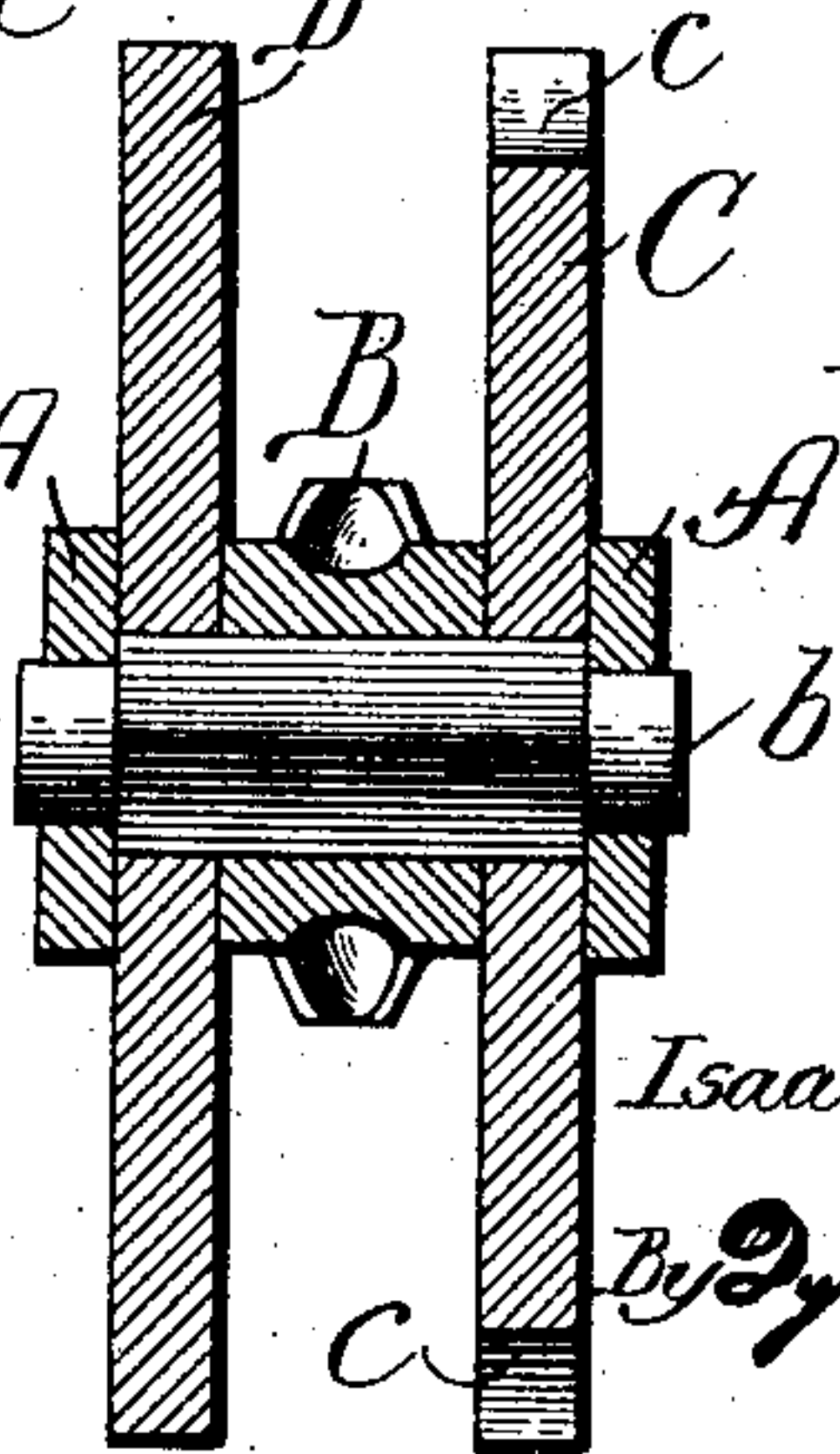


Fig. 5.



Witnesses:
E. S. Gaylord.
John Enders

Inventor:
Isaac M. Warner,
By Dymfreck Dymfreck & Co.
Att'ys.

UNITED STATES PATENT OFFICE.

ISAAC M. WARNER, OF UNION CITY, MICHIGAN, ASSIGNOR TO CHARLES F. SMITH, OF DEKALB, ILLINOIS.

WIRE-STRETCHER.

SPECIFICATION forming part of Letters Patent No. 768,252, dated August 23, 1904.

Application filed May 31, 1904. Serial No. 210,375. (No model.)

To all whom it may concern:

Be it known that I, ISAAC M. WARNER, a citizen of the United States, residing at Union City, in the county of Branch and State of Michigan, have invented a new and useful Improvement in Wire-Stretchers, of which the following is a specification.

My invention relates to an improvement in the class of devices used more particularly for stretching wire fence in erecting it by anchoring the stretcher through the medium of a chain to a post or other stable object, attaching it to the free end of the fence to be tightened, and actuating the stretcher to shorten the length of the chain between it and the post, thereby taking up slack in the fence.

The primary object of my improvement is to render the stretching implement under any degree of strain to which it may have to be subjected in use antislipping without the employment to that end of any pawl-and-ratchet mechanism, the release of which to disengage the stretcher is attended with more or less difficulty, thereby to facilitate the use of the implement and also to materially simplify its construction besides rendering it comparatively light and strong.

Referring to the accompanying drawings, Figure 1 shows my improved implement operatively applied in stretching a wire fence. Fig. 2 is a plan view of the stretcher connected with the wire-clamp. (Shown in cross-section.) Fig. 3 is a section taken at the line 3 on Fig. 2 and viewed in the direction of the arrow. Fig. 4 is a section taken at the line 4 on Fig. 2 and viewed in the direction of the arrow, with the chain engaging the sprocket; and Fig. 5, a section taken at the line 5 on Fig. 2 and viewed in the direction of the arrow.

A A are the similar side bars of the frame, fastened together near their rear ends, as by a bolt a' , and offset, as at $v v$, to produce the expanded section A' or head of the frame, near the ends of which the bars are fastened together by a bolt a . Behind the head A' the frame-bars afford bearings for a shaft b , journaled in them at its cylindrical ends, the intermediate portion of the shaft being angu-

lar in cross-section and carrying centrally a sprocket B and at opposite sides thereof similar gear-wheels C and D. Each gear-wheel is provided in its periphery with a circumferential series of arc-shaped recesses c , and the wheels are relatively so set on their shafts as to dispose the recesses of one in staggered relation to those of the other, as represented in Fig. 3, or to cause the teeth c' of one and the transverse centers of the recesses of the other to coincide with each other. In front of the wheels C D a drive-shaft d is journaled in the frame-bars to extend between them and carries at opposite sides of its transverse center similar pinions C' and D' to mesh, respectively, with the wheels C and D. Each pinion is formed with round-edged teeth e to conform to and fit the recesses in the wheels, the two pinions being relatively so disposed as to cause the centers of the teeth of each to coincide with the recesses between the teeth of the other. One protruding end of the shaft d is adapted to have applied to it an operating-handle E for turning it.

To use the device as indicated in Fig. 1 for stretching a wire fence F, it is anchored to a post f by hooking thereto one end of a chain g and passing the other free end of the chain between the frame-bars A over the sprocket B. The head end A' of the stretcher, with the bolt a removed from it, is caused to embrace a clamp G at or near its transverse center, the clamp shown being formed of a pair of two by four timbers bolted flatwise together, and the wires of the fence are clamped between them. With the frame of the stretcher thus applied to the clamp a bolt a^2 is passed through the latter and the side bars of the frame, and the bolt a is replaced to bear against the adjacent edge of the clamp and insure the exertion of the stretching draft in a straight line by preventing the stretcher from tilting. The stretcher being thus adjusted the operator applies the handle E to the shaft d and turns it in the direction indicated by the arrow on Fig. 1, thereby causing the teeth on the pinions C' and D' , respectively, to engage alternately the recesses c on the gears C and D to turn the shaft b , and with it the sprocket

B, to shorten the length of chain between the stretcher and post *f* as the slack in the fence is taken up, the free end of the chain as it lengthens descending from the sprocket.

5 It will be observed that when a tooth *c* of a gear-wheel is in a recess between the teeth of its cooperating pinion it is so close to the center of the body of the shaft *d* as to be exerting the leverage of the gear nearly against
10 a dead-center, which tends to lock the shaft *b* against reversal under the stretching strain, notwithstanding the greater leverage meantime exerted by the other gear against its pinion, a tooth of which is then in a coincident recess *c* of that gear. Throughout the
15 rotations of the shaft *d* a tooth *c'* of one gear thus locks the stretcher against slipping under the strain to which it is subjected when the recess *c* in the companion gear is in full
20 engagement with a tooth *c* on its cooperating pinion, so that the stretcher in operation is always locked against slipping under the strain without requiring the operator to exert great power at the handle to resist it.

25 The construction of the stretcher adapts it to be applied upside down from the operative position in which it is represented and with its ends reversed from that position for use
30 under all conditions of the fence to be stretched and operating it at either side thereof. When the fence has been stretched and fastened in that condition, the stretcher may be easily loosened by turning the handle *E* in the reverse direction to slacken the chain and permit the stretcher and cooperating parts to be
35 disconnected.

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

1. The combination with a frame, of a shaft
40 journaled therein and carrying a pair of gear-wheels, each provided with a circumferential series of arc-shaped recesses, and a sprocket between said wheels, and a drive-shaft journaled in the frame and carrying a pair of pinions having round-edged teeth conforming to
45 said recesses to engage therewith, substantially as described.

2. The combination with a frame, of a shaft
50 journaled therein and carrying a pair of gear-wheels, each provided with a circumferential series of arc-shaped recesses, and a sprocket between said wheels, the wheels being set

upon their shaft to dispose said recesses in staggered relation from one wheel to the other, and a drive-shaft journaled in the frame
55 and carrying a pair of pinions having round-edged teeth conforming to said recesses to engage therewith, substantially as described.

3. The combination with a frame having an expanded head at which it is adapted to embrace a clamp, of a shaft journaled in the frame
60 and carrying a pair of gear-wheels, each provided with a circumferential series of arc-shaped recesses, and a sprocket between said wheels, the wheels being set upon their shaft
65 to dispose said recesses in staggered relation from one wheel to the other, and a drive-shaft journaled in the frame and carrying a pair of pinions having round-edged teeth conforming to said recesses to engage therewith, substantially
70 as described.

4. The combination of a frame comprising side bars bolted together near their opposite ends, a shaft journaled in the frame and carrying a pair of gear-wheels, each provided
75 with a circumferential series of arc-shaped recesses, and a sprocket between said wheels, the wheels being set upon their shaft to dispose said recesses in staggered relation from one wheel to the other, and a drive-shaft journaled
80 in the frame and carrying a pair of pinions having round-edged teeth conforming to said recesses to engage therewith, substantially as described.

5. In combination, a frame formed of side
85 bars bolted together near one end and offset toward their opposite ends to form an expanded head, a shaft journaled in the frame and carrying a pair of gear-wheels, each provided with a circumferential series of arc-shaped
90 recesses, and a sprocket between said wheels, the wheels being set upon their shaft to dispose said recesses in staggered relation from one wheel to the other, a drive-shaft journaled in the frame and carrying a pair of
95 pinions having round-edged teeth conforming to said recesses to engage therewith, and a bolt extending across said head near its outer end, substantially as and for the purpose set forth.

ISAAC M. WARNER.

In presence of—

L. HEISLAR,

WALTER N. WINBERG.