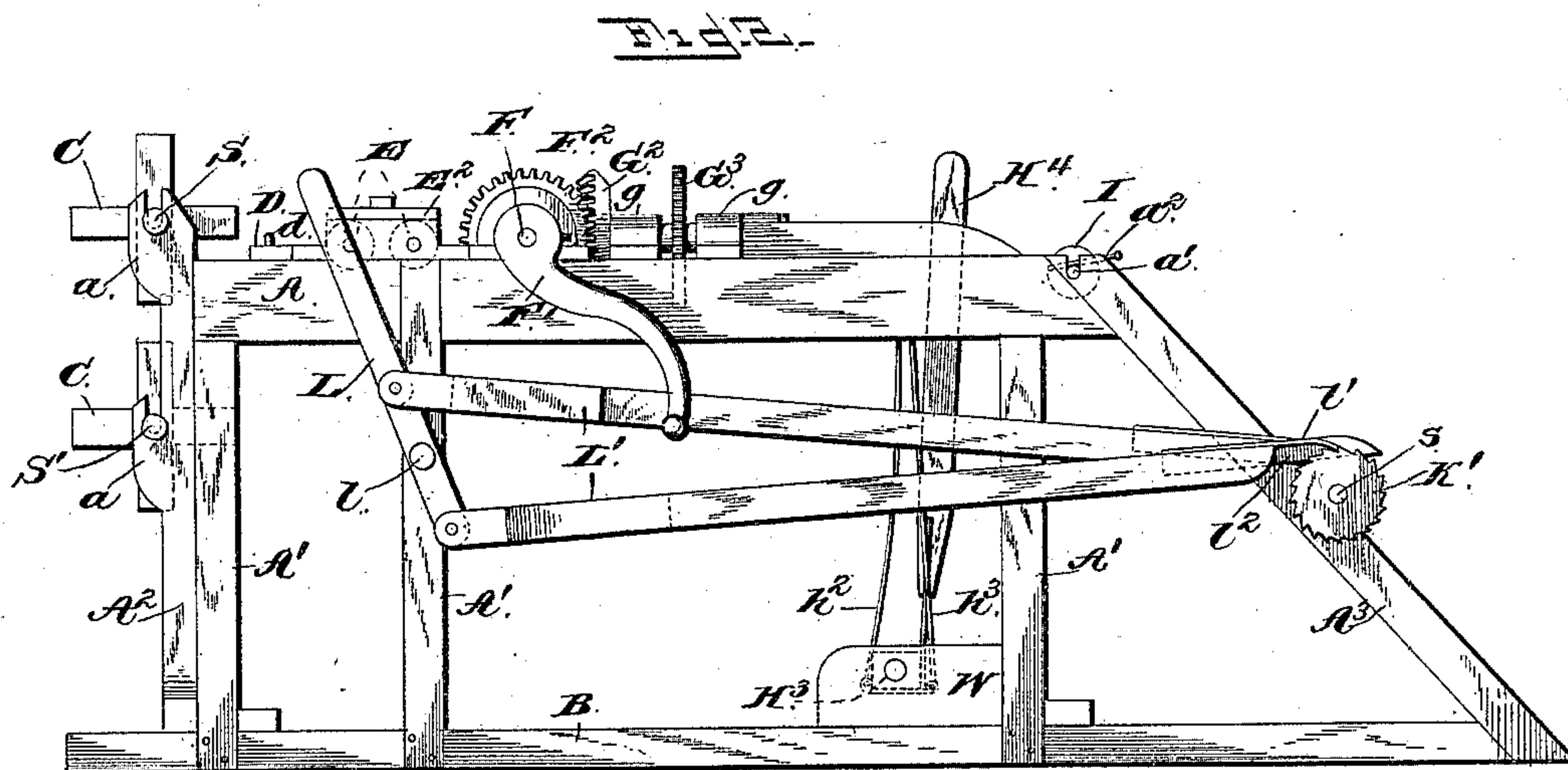
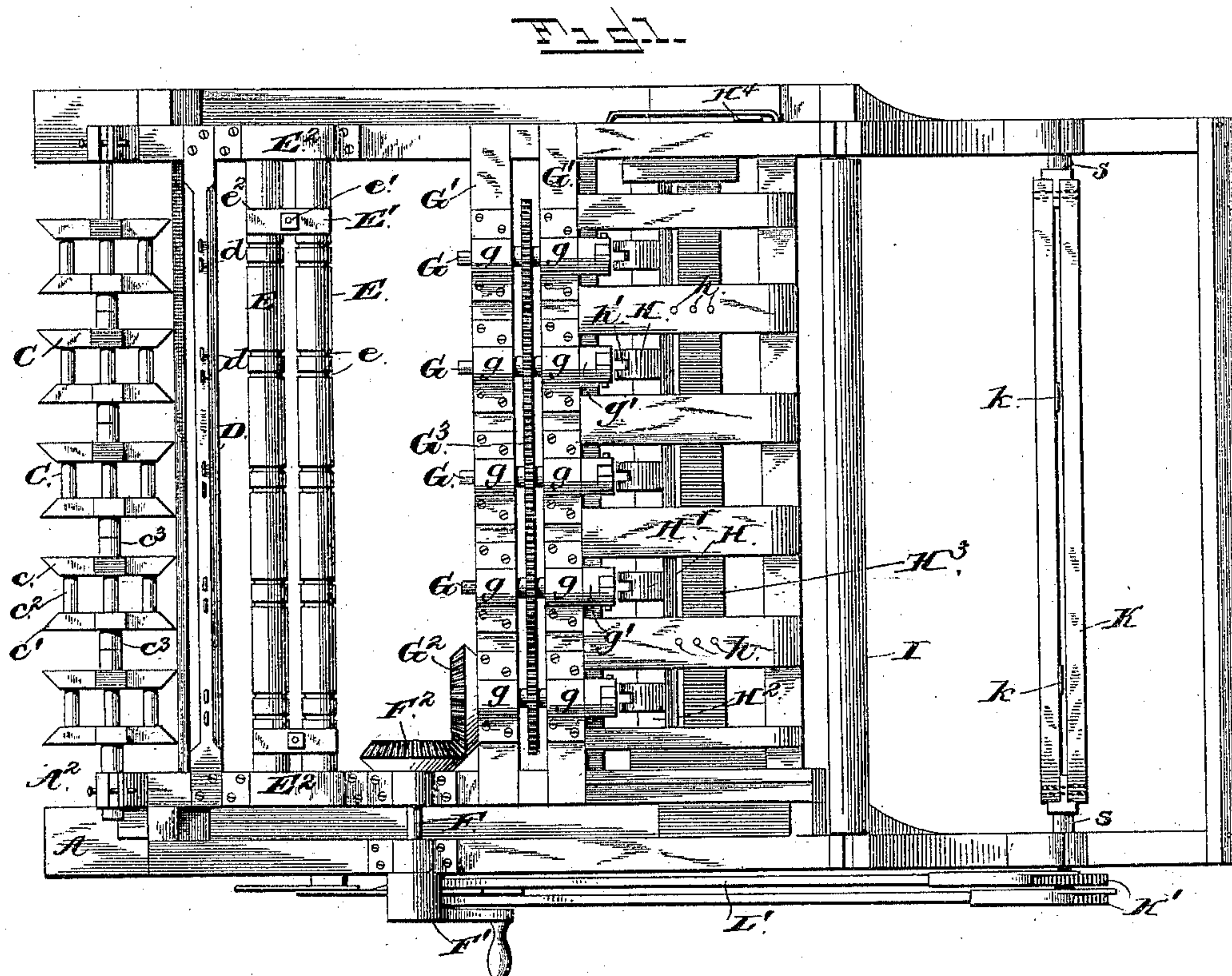


2 Sheets—Sheet 1.

No. 398,281.

Patented Feb. 19, 1889.



INVENTOR,

WITNESSES.

WITNESSES,
G. S. Elliott.
W. Johnson

by

Attorney:

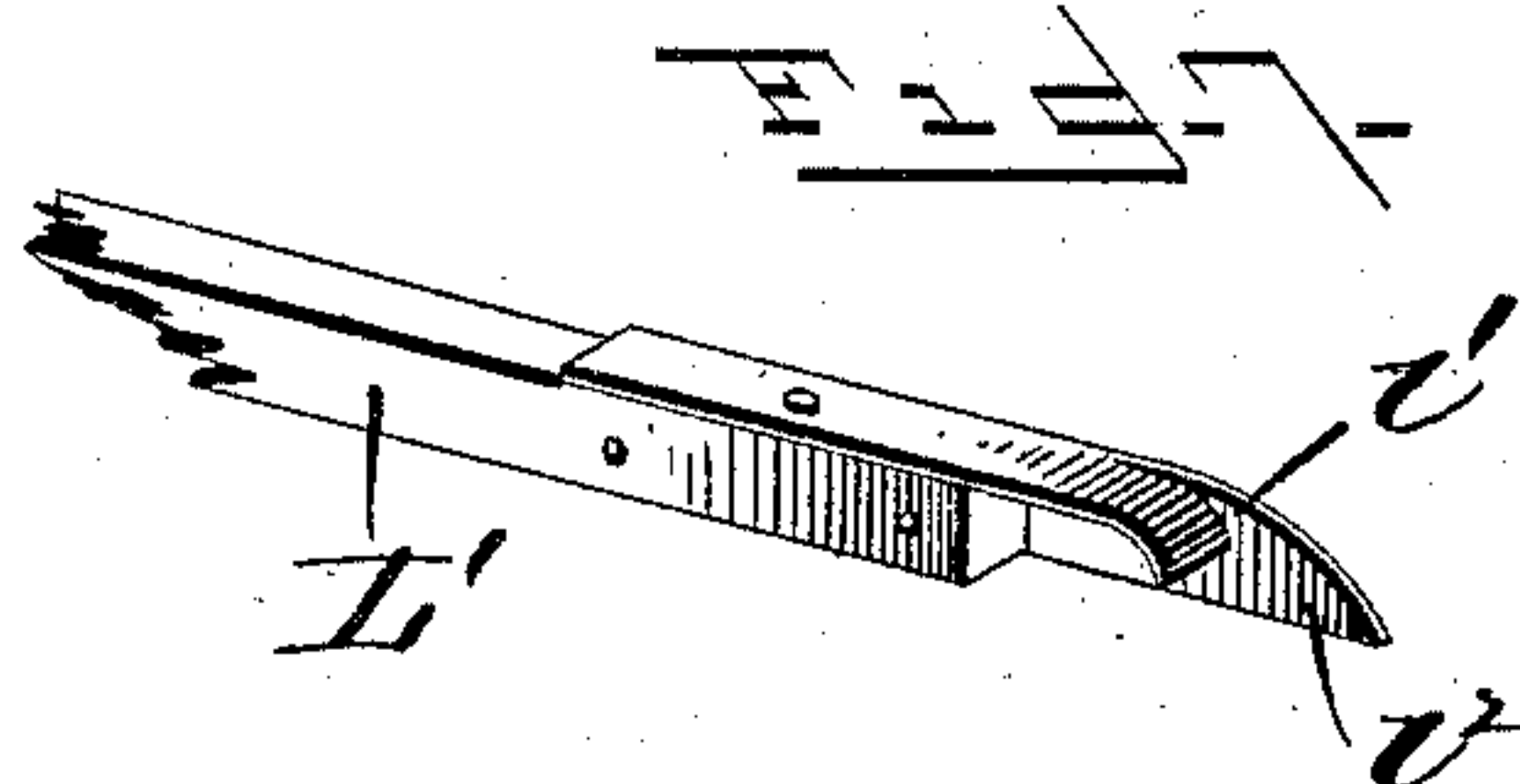
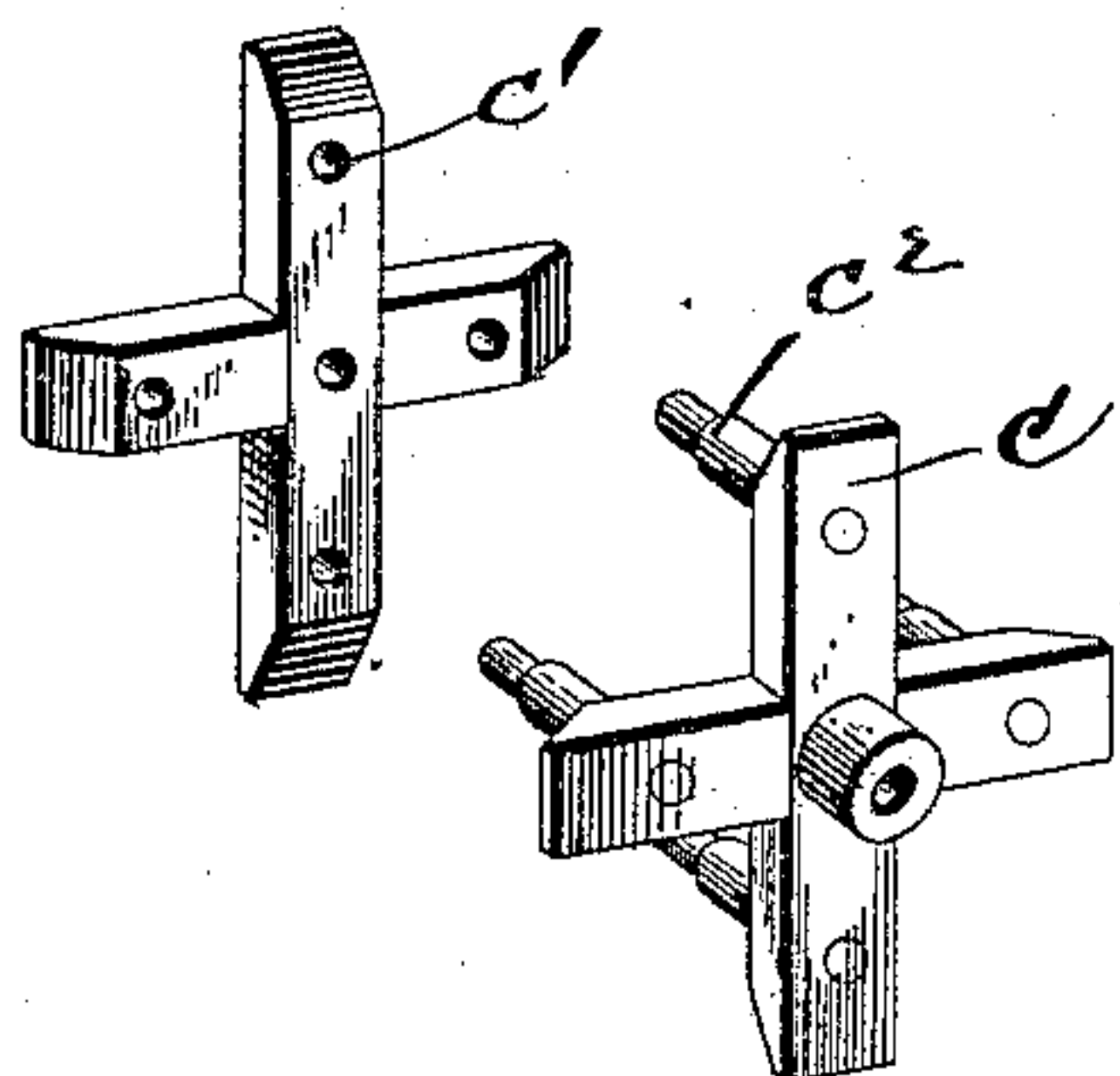
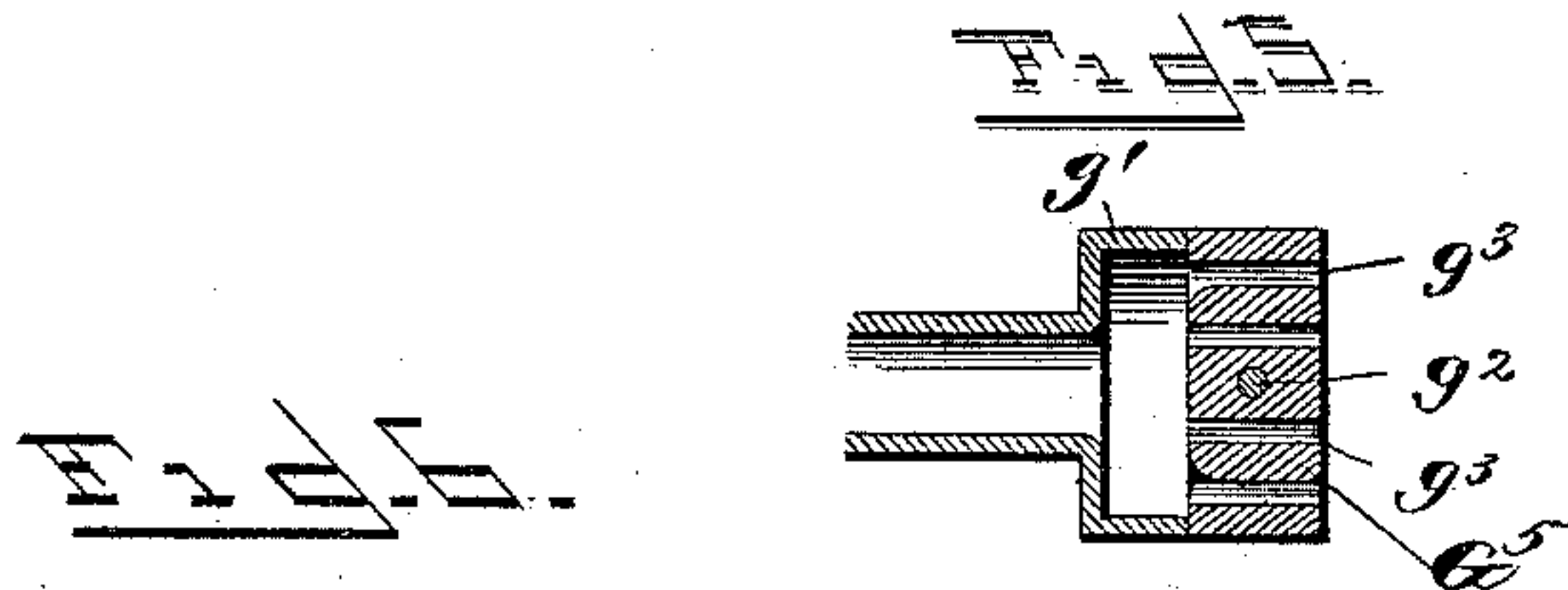
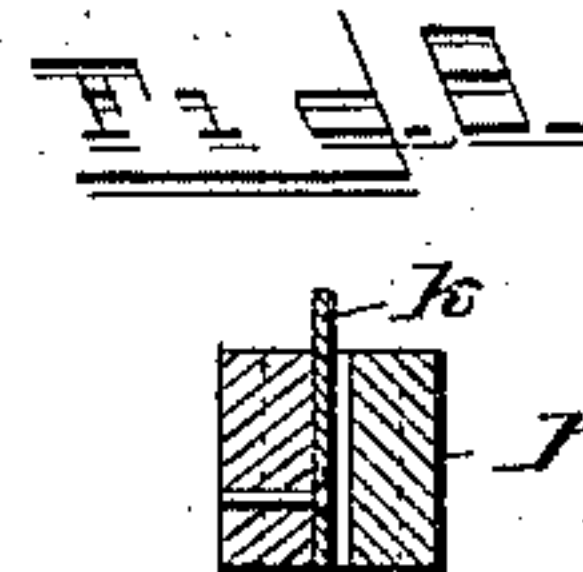
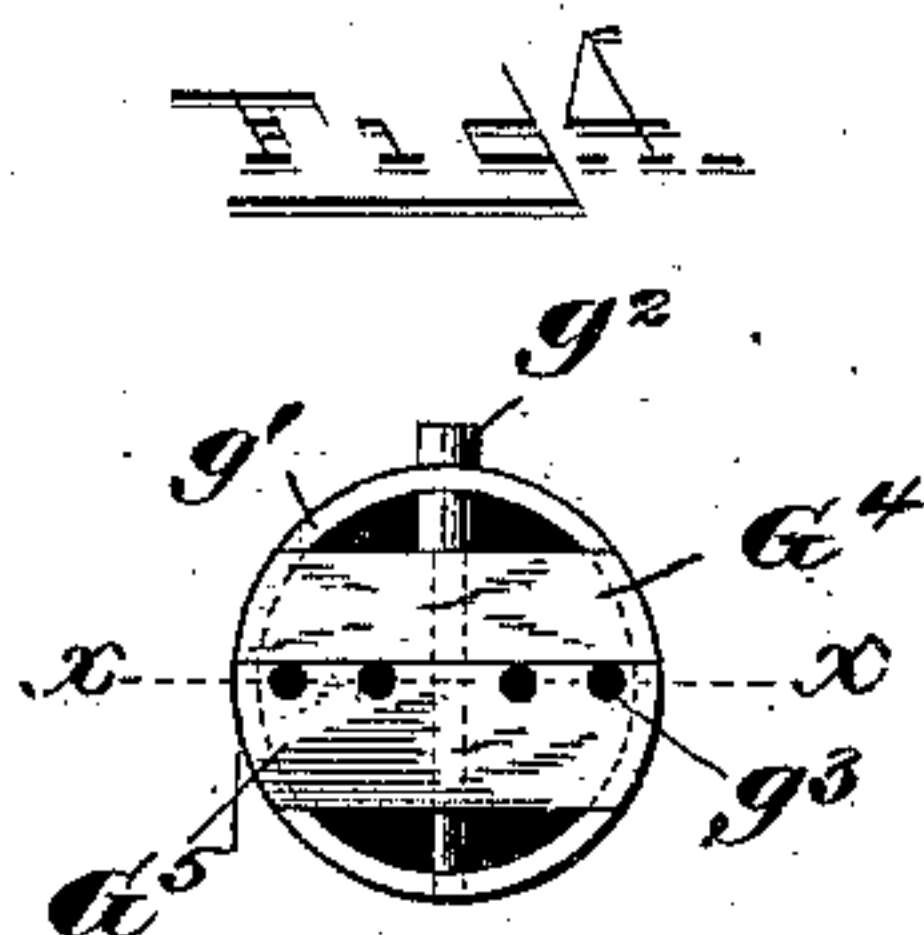
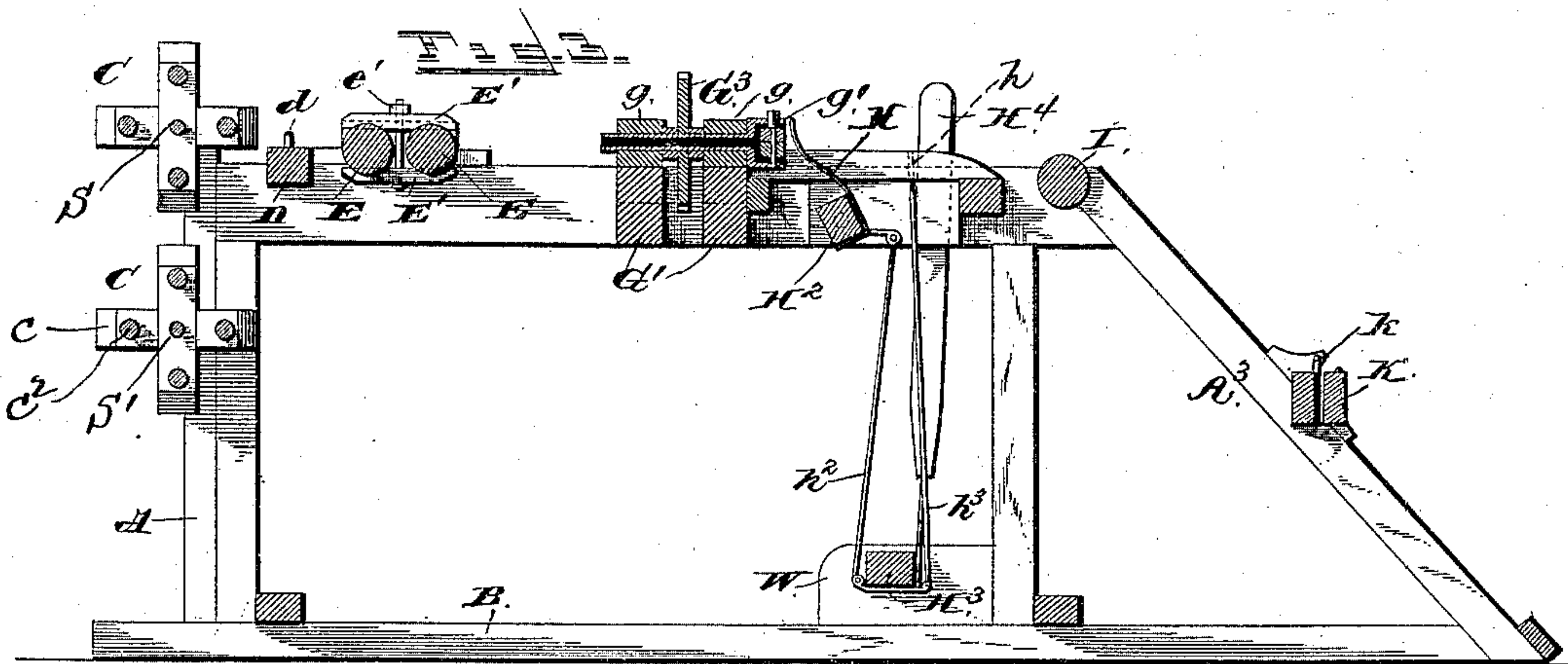
(No Model.)

2 Sheets—Sheet 2.

R. E. REX.
FENCE MACHINE.

No. 398,281.

Patented Feb. 19, 1889.



Ross E. Rex.

INVENTOR

by Attorney

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 G. S. Elliott.
 E. M. Johnson

UNITED STATES PATENT OFFICE.

ROSS E. REX, OF PUEBLO, COLORADO.

FENCE-MACHINE.

SPECIFICATION forming part of Letters Patent No. 398,281, dated February 19, 1889.

Application filed December 2, 1888. Serial No. 292,545. (No model.)

To all whom it may concern:

Be it known that I, ROSS E. REX, a citizen of the United States of America, residing at Pueblo, in the county of Pueblo and State of Colorado, have invented certain new and useful Improvements in Fence-Machines; 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 appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in fence-making machines; and it consists in the construction and combination of parts, to be more fully hereinafter described and claimed.

The object of my invention is to save expense of time and labor in the manufacture of this class of fences by a simple, durable, and convenient machine which is readily understood and operated. I attain this object by the form of construction illustrated in the accompanying drawings, wherein like letters of reference are used to designate similar parts in the several views, and in which—

Figure 1 is a top plan view of the machine. Fig. 2 is a side elevation thereof. Fig. 3 is a longitudinal vertical section of the same. Fig. 4 is a front end elevation of one of the twist-ers, showing one of my improved attachments in connection therewith. Fig. 5 is a horizontal section on the line $x x$ of Fig. 4. Fig. 6 is a detail perspective view of one of the wire-holding spools. Fig. 7 is a similar view of a part to actuate the fence-tightening roll. Fig. 8 is a detail sectional view of part of the winding-roll, showing the manner of pivoting the plates therein.

A indicates the bed-frame, of substantially the form shown in the accompanying drawings, supported by suitable uprights, $A' A'$, which in turn are secured to a base-bar, B. The said base-bar B is extended beyond the front end of the machine to receive an inclined support, A^3 , having an open slot, a' , in its upper end adapted to be closed by a draw-pin, a^2 . Adjacent to the rear upright, A' , an upright, A^2 , is secured, having enlargements a in the upper part thereof, with open slots

therein. Within these slotted enlargements a transverse shafts S and S' are mounted, and held therein by any suitable and well-known means. These shafts S and S' are arranged parallel and in vertical alignment, and are adapted to receive wire-holding spools C. These spools C are constructed of two parts separable from each other, the parts c of each of said spools comprising a head supporting rounds c^2 . The other part of each of said spools consists of a head, c , with suitable apertures therein to receive the ends of the rounds c^2 of the opposite head. Each of said heads is also provided with a collar, c^3 , which abuts against the next adjacent collar, thereby spacing the said spools to prevent them becoming disarranged. By means of this separable form of spool the coil or bight of wire may be placed thereon without unwinding said wire, thereby saving time and labor.

On the top part of the bed-frame a cross-bar, D, is secured, having guide-staples d arranged in pairs on the top surface thereof. Ahead of said bar D, and mounted in suitable journal-boxes secured to the bed-frame, are two adjacently-situated rollers, E, having grooves e therein. Adjacent to the ends of said rollers other grooves, e^2 , are formed, which receive clamping blocks or strips E' , which are made adjustable by means of a bolt and nut, e' . While the said rollers E are permitted to have free movement in the journal-boxes, and will be used thus at times, it often becomes necessary, under certain conditions, to change the tension, and this is accomplished by clamping the blocks or strips E' upon said rollers. This will affect or retard the revolution of said rollers and the desired tension be thereby obtained. Ahead of said rollers E, and secured to the top of the bed-frame A, are two cross-strips, G' , upon which journals g are arranged in parallel line. Within these journal-boxes the twisting-spindles G are mounted, having meshing gear-wheels thereon arranged between said bars G' . The one spindle G arranged nearest the one side of the frame has a beveled gear, G^2 , secured to the rear end thereof, which meshes with a similar gear, F^2 , secured to the one end of a transverse shaft, F. The outer end of said shaft F has an operating crank-handle,

F', secured thereto, and by this means the twisting-spindles are revolved. The forward ends of said twisting-spindles G are made in the form of enlarged heads g' , which are slotted to receive plates G^4 and G^5 , the outer surfaces of these plates lying flush with the front edge of the said enlarged heads, and are held in connection therewith by bolts g^2 , passing through said enlarged heads and through the said plates. The plate G^5 has two or more apertures, g^3 , to adapt the twist-ers for use in connection with broad or narrow slats. In making narrow-slat fences the wires are passed through the two apertures nearest the center of said spindle, and in making broad-slat fences through the outer apertures. This change of wires from one position to the other is accomplished by withdrawing the bolt g^2 and removing one or both of the plates G^4 G^5 , as will be readily understood.

In front of the twisting-spindles G a slatted frame, H' , is secured, and below said slatted frame, adjacent to the bottom board, B, a square rock-shaft, H^3 , is mounted on suitable end bearings, W. Hinged to one side of said rock-shaft H^3 at regular intervals are metallic arms h^2 , which project upwardly, and are hinged to an upper rock-shaft, H^2 , secured in the bed-frame A. This upper rock-shaft H^2 carries upwardly-projecting curved arms H, having bifurcated ends h' , through which the wires leaving the twisting-spindles pass. To the opposite side of the said rock-shaft H^3 adjacent to the two ends thereof, and almost parallel with the metallic connections h^2 , are wire rods h^3 , which pass up through apertures h in two of the slats or frames H' . As shown, three of these apertures h are formed in said slats, and the rods h^3 are adapted to be placed in engagement with any one of said apertures, in order to bring the projecting ends of said rods nearer to or farther away from the twisting-spindles. Connected to the one end of said rock-shaft H^3 is a pivoted lever, H^4 , projecting above the bed-frame A, and by operating said lever the arms H are thrown away from or brought nearer to the ends of the spindles G, and the upper ends of the rods h^3 are projected up through the apertures h , or drawn down there-through. When the slat is passed through the strands of the wire, the lever H^4 is drawn toward the rear end of the machine and the arms H brought to bear against said slat to force it against the twist before made. The upper ends of the wires h^3 project upwardly in front of said slat, to prevent its being pushed over too far. It will be seen that the arms H have free movement and operation between the slats of the frame H' , as shown in Fig. 1.

In the upper slotted end, a' , of the forward inclined frame, A^3 , a roller, I, is mounted, having short metallic end extensions, which are held in said slots a' by a draw-pin, a^2 . Over

this roller the completed fence travels down to the roller K, journaled and held midway of the said inclined frame A^3 . This roller K is square in configuration, and is constructed of two parallel strips secured at their ends to stub-shafts s, which have bearing in the journals. A space is left between the strips composing said roll, and to one of said strips metallic plates k are pivoted and adapted to project upward above the face of the said roll. Said plates k are pivoted in the roller K, for the purpose of allowing them to be thrown down between the parts of the said roller, in order that the roll of completed fencing may be readily removed therefrom. These strips k engage one of the slats of the completed fence, and as the roller K is turned will hold the same in contact with the roll and prevent its slipping. To one of the stub-shafts s which project outward from one side of the frame A^3 a double ratchet-wheel, K' , is secured, composed of two ratchet-wheels of ordinary construction, which are engaged by the ends of extended pawls L' , secured to a lever L, which in turn is attached to one of the uprights A' by a pivot, l . The forward ends of the elongated pawls L' have metallic plates secured thereto, which are constructed with downward extensions l^2 , adapted to play on the inside of each of the ratchet-wheels K' , and with horizontal members l' with forward downwardly-bent ends adapted to engage the teeth of the ratchets. These metallic extensions are constructed of pieces of metal bent at right angles and separated from each other at their forward parts to form the downward-bent end of the horizontal member l' . As the lever L is operated, the one pawl L' shoves its ratchet K' forward while the other is drawing back to engage its ratchet. This movement of the said pawl L' is alternated, and when the lever L is rapidly operated becomes almost continuous, and a steady revolution of the roll K is had. By this double ratchet-and-pawl attachment an invariable tension can be sustained and a small amount of slack be taken up.

In operation the wires from the upper and lower spools C are passed through the guide-staples d in the strip D, thence under the first roller E, and over the second roller E in the grooves e thereof. Said wires are then passed through the spindles G and through the inner or outer apertures, g^3 , in the plate G^5 of the head g' of said spindle, as may be required. The slats are inserted between the wires in the usual manner in this class of machines, and as the twist is made between said slats other slats are inserted and the manufacture of the fence becomes continuous.

The guide-staples d , with the grooves e in the rollers E, serve to remove kinks or twists from the wire before entering the twisting-spindles. This is aided materially by the tension blocks or strips E' on the rollers E, as hereinbefore set forth.

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

5 1. A twisting-spindle for fence-making machines and analogous purposes, adapted to be revolved by suitable gearing, having an enlarged slotted tubular head, in combination with two plates removably held in said slotted head, one of which has a series of apertures therein opening out from one side thereof, and the other adapted to bear against said apertured side of the aforesaid plate and close the opening of the apertures, substantially as described.

15 2. A tension device for fence-making machines, comprising two parallel horizontally-arranged grooved rollers extending entirely across the machine-bed, and having adjustable blocks or strips located above and below

said rolls and engaging with grooves near the ends thereof, adapted to regulate the tension of said rolls, substantially as described.

3. A winding-roll for fence-making machines, having a double ratchet on one end thereof, in combination with double levers or extended pawls having metallic plates on their front ends bent into shape from a single piece of sheet metal to form an extended guard to engage with the inside of each ratchet, and a downward-bent lip to engage the teeth of said ratchet, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

ROSS E. REX.

Witnesses:

R. A. HASBROUCK,
T. F. AMICK.