

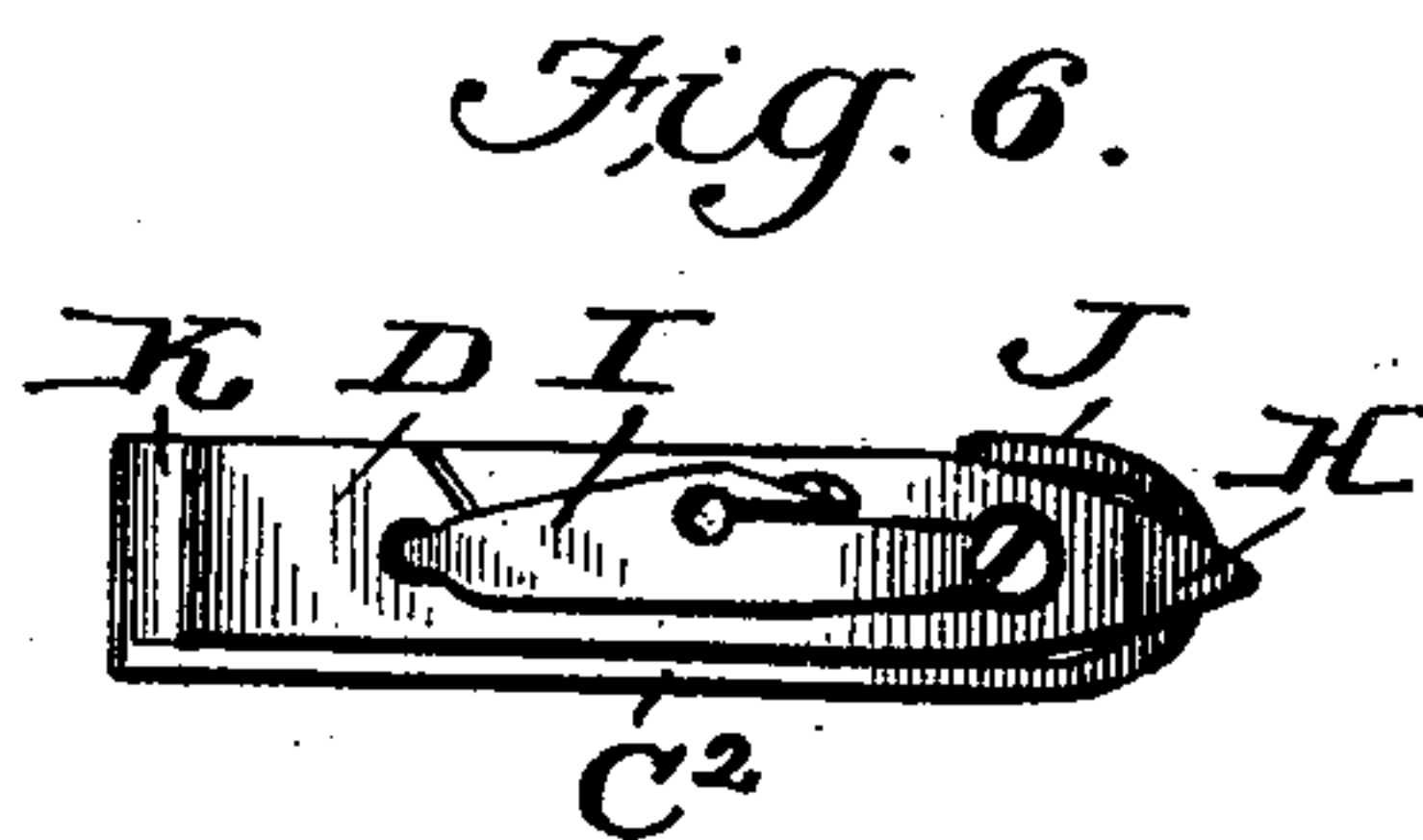
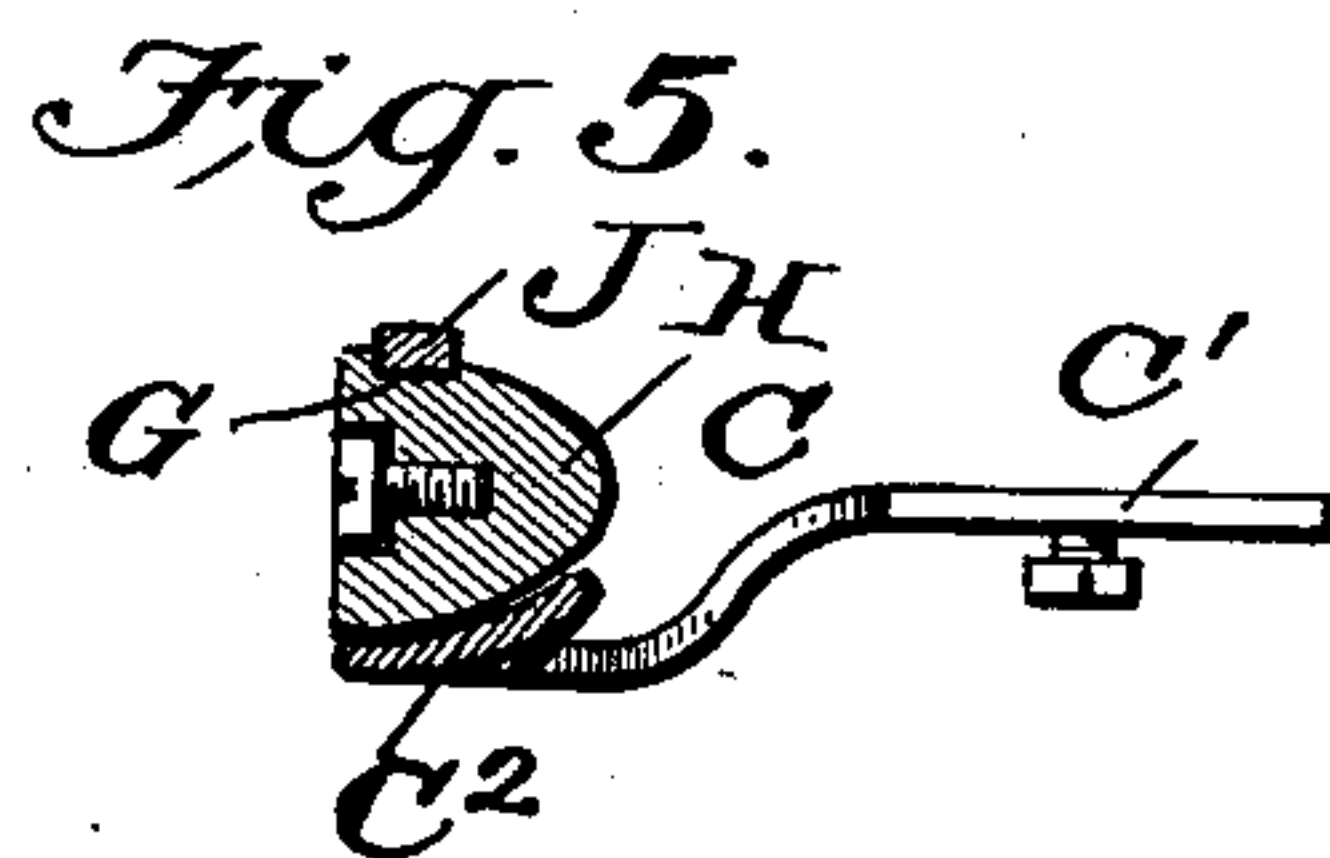
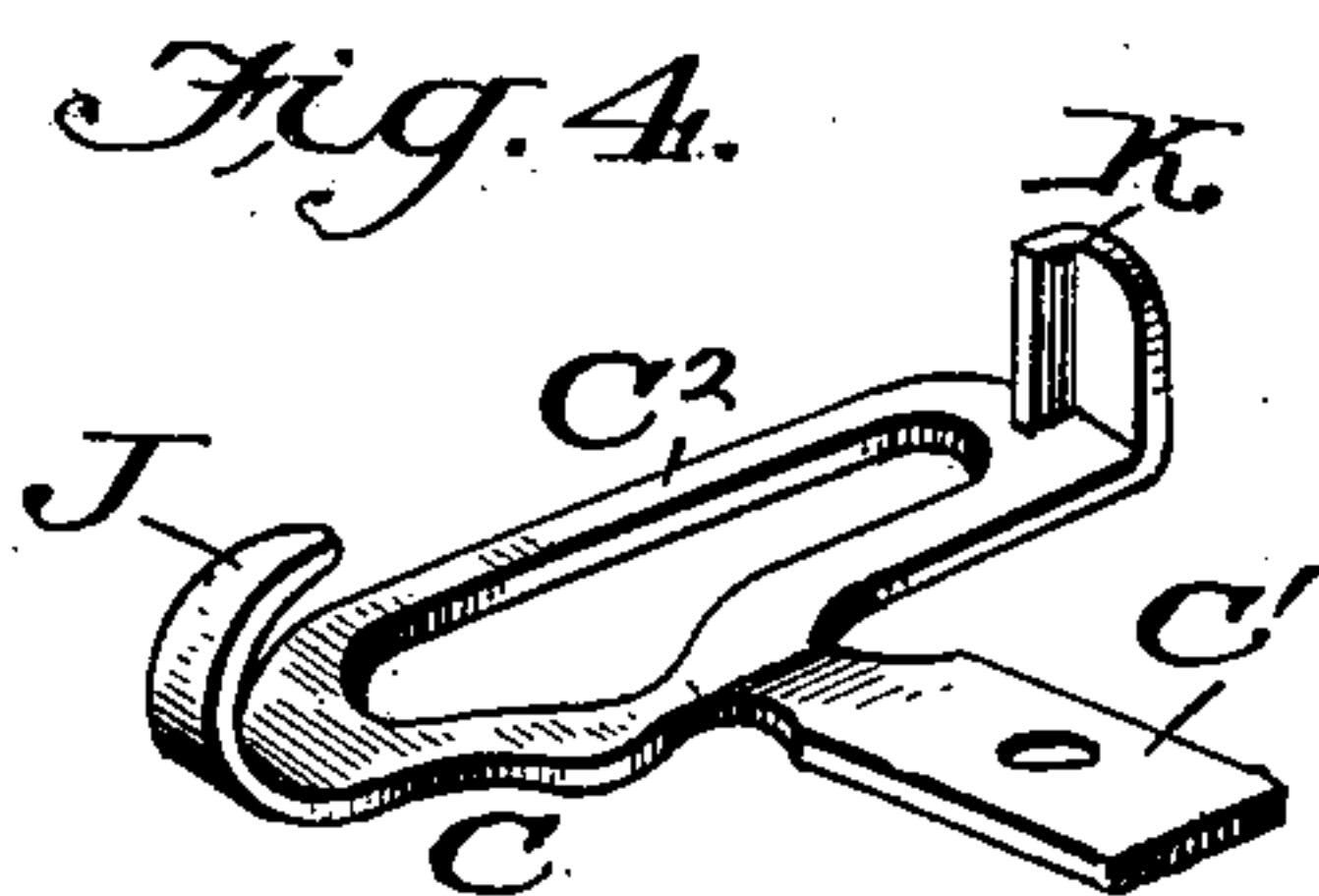
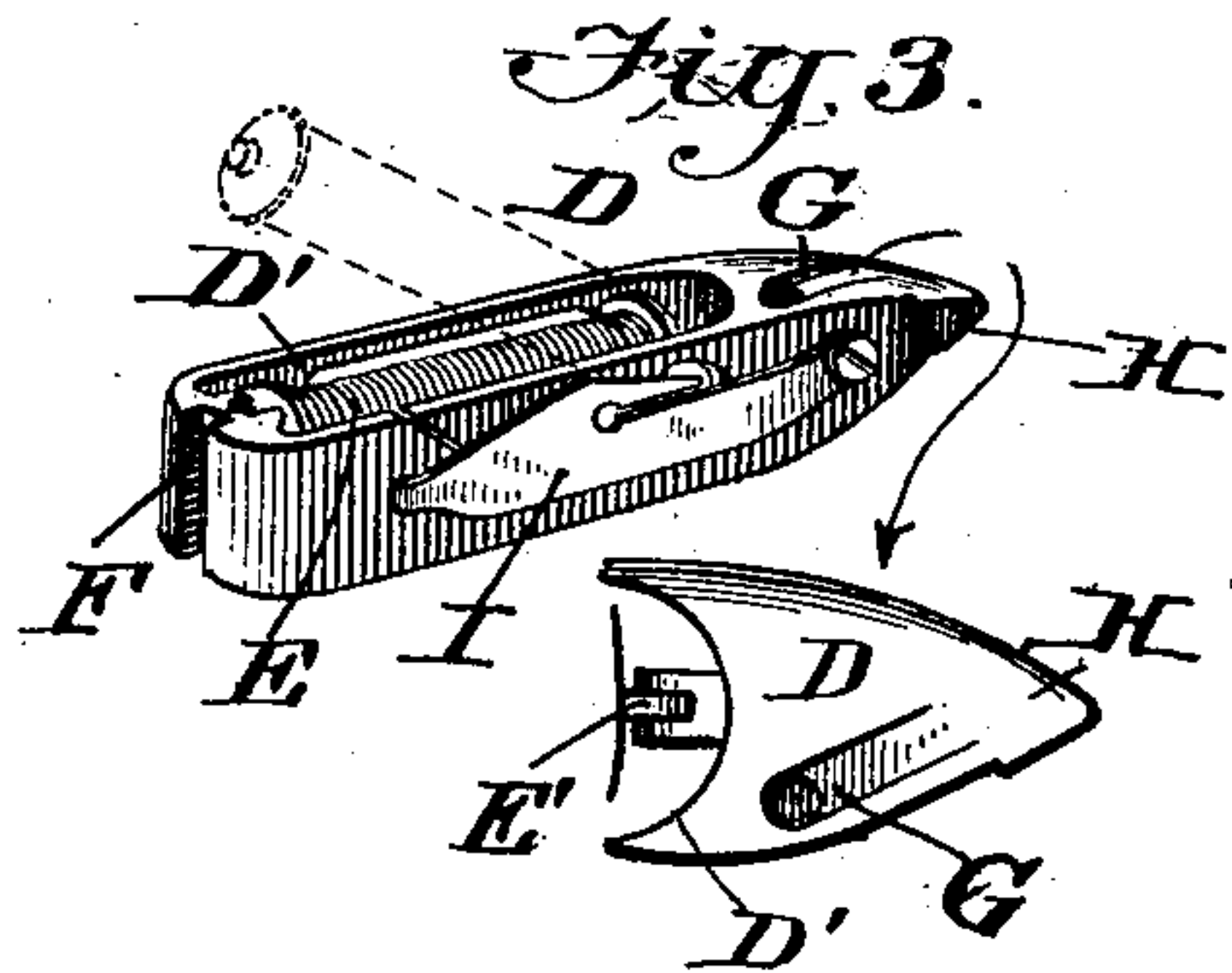
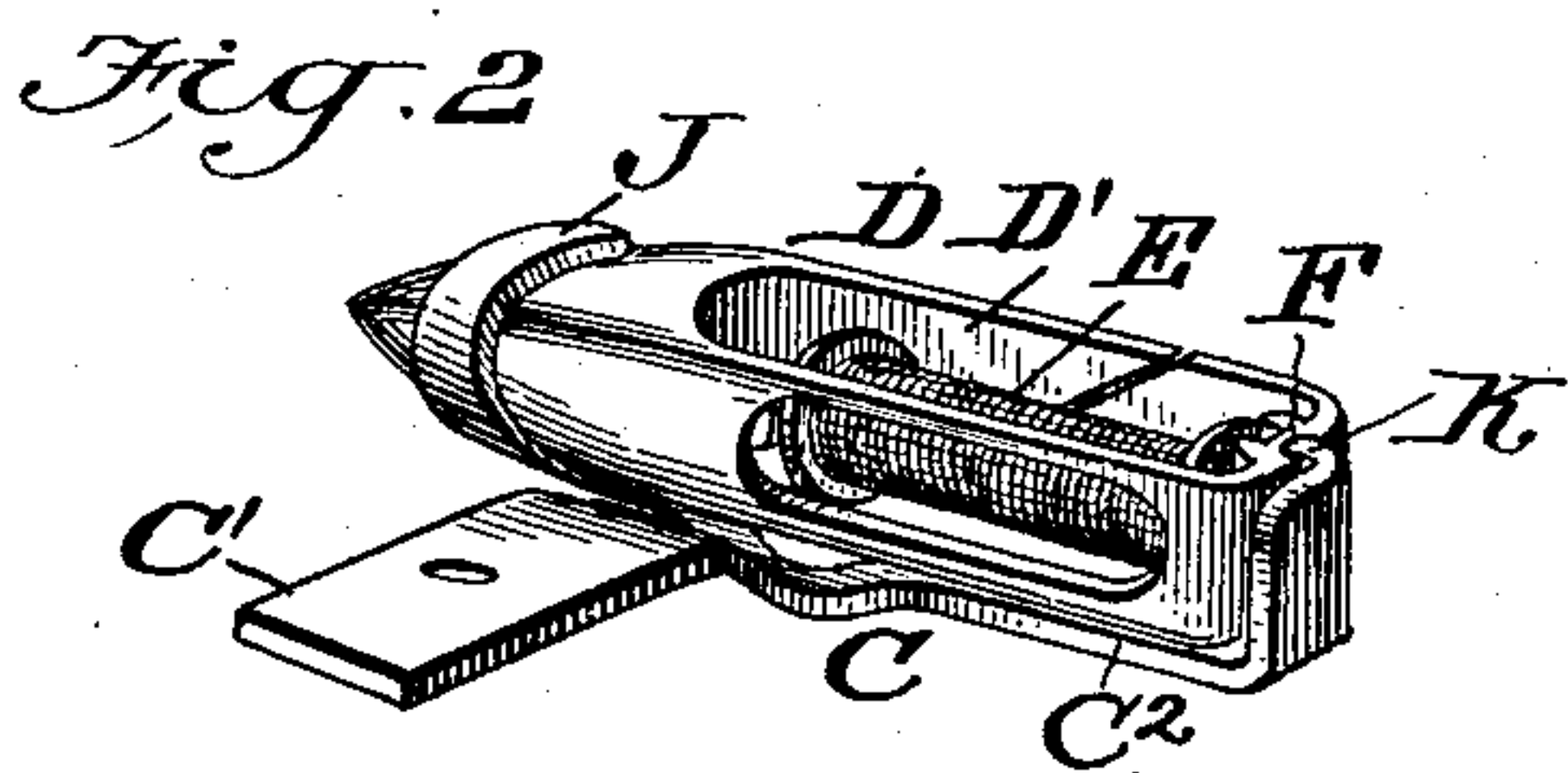
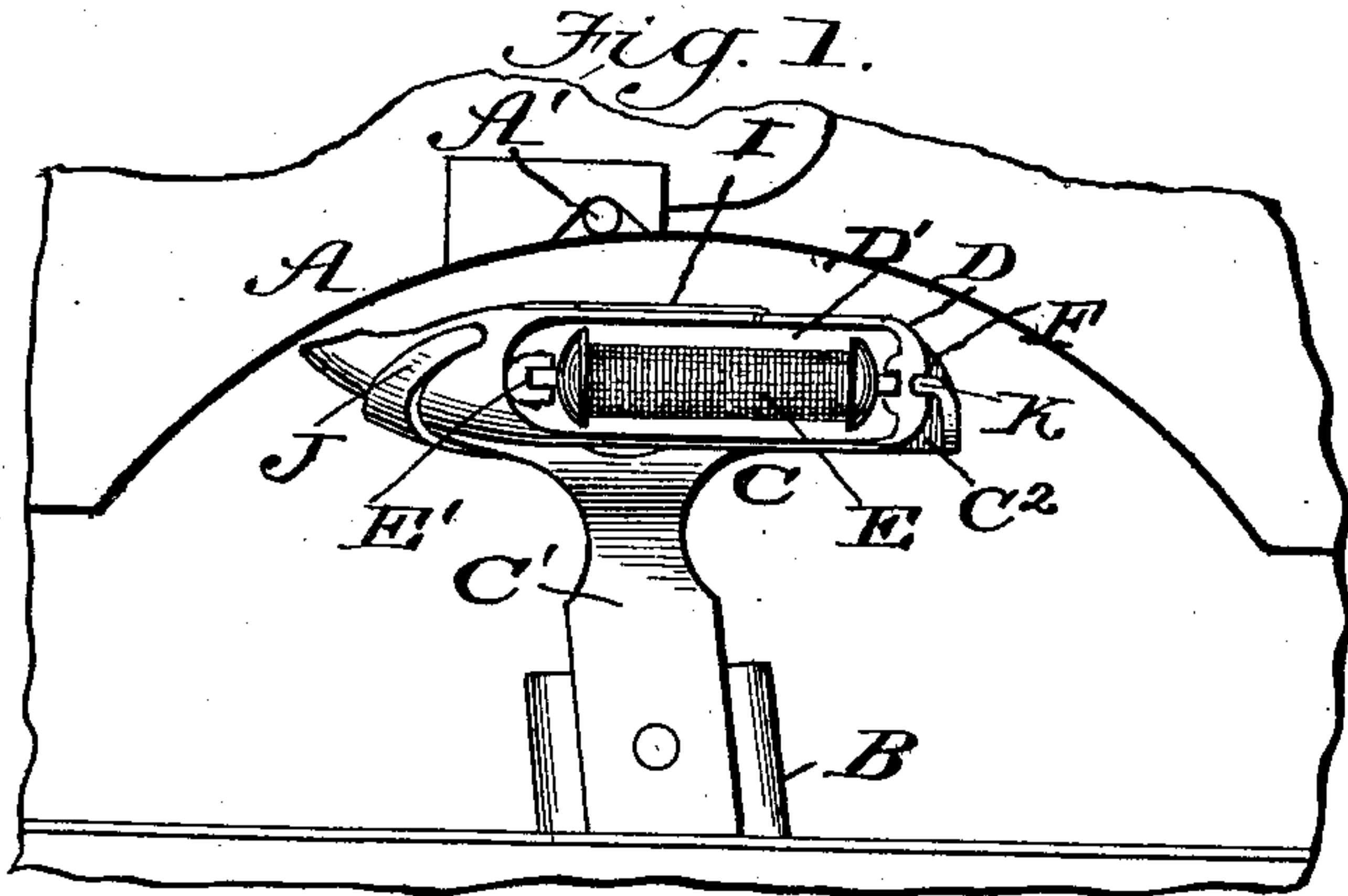
No. 701,780.

Patented June 3, 1902.

C. T. WARREN.
SHUTTLE MECHANISM FOR SEWING MACHINES.

(Application filed Dec. 11, 1900.)

(No Model.)



WITNESSES:

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SHUTTLE MECHANISM FOR SEWING-MACHINES.

SPECIFICATION forming part of Letters Patent No. 701,780, dated June 3, 1902.

Application filed December 11, 1900. Serial No. 39,548. (No model.)

To all whom it may concern:

Be it known that I, CHARLES T. WARREN, a citizen of the United States, residing at San Antonio, in the county of Bexar and State of Texas, have made certain new and useful Improvements in Sewing-Machines, of which the following is a specification.

My invention is an improvement in sewing-machines, and particularly in the shuttle and carrier therefor, having for an object to prevent undue wear upon the shuttle by holding the same clear of the raceway, so it will not be subject to wear from the friction thereof, and also to arrange the tension on the inner side of the shuttle or side next the raceway; and the invention consists in certain novel constructions and combinations of parts, as will be hereinafter described and claimed.

In the drawings, Figure 1 is a top plan view of my invention as in use, parts being broken away. Fig. 2 is a detail perspective view of the shuttle and its carrier. Fig. 3 is a detail perspective view of the shuttle. Fig. 4 is a detail perspective view of the carrier. Fig. 5 is a cross-sectional view drawn transversely through the point of a horn on the cradle which fits within the recess on the top of the shuttle, and Fig. 6 is an elevation of the inner side of the shuttle and carrier.

The shuttle-race A may be formed with the needle-well A', which parts, together with the oscillating lever B, may be of the usual or desired construction. The shuttle-carrier C is provided with a shank C', which is connected with the oscillating lever B, as is usual in sewing-machines of the type illustrated. Ordinarily in this class of sewing-machines the shuttle is held in a cradle with the carrier, so it is free to move centrifugally against the raceway A, and the tension devices arranged upon the upper side of the shuttle. Manifestly this construction in operation produces considerable friction between the shuttle and the raceway and a resulting wear on both parts, as well as rendering the machine harder to operate because of such friction. In such construction the shuttle is closed at the top and the operator cannot see the condition of the bobbin without taking the shuttle out of the cradle. By my invention I support the shuttle so it practically floats in the air, by

holding it from movement against the raceway, the nose of the shuttle projecting properly to catch the loop from the needle so the said loop can pass around the shuttle, while the shuttle is held from movement against the raceway. I also make my shuttle open at the top, so the bobbin can be readily seen without displacing the shuttle, and the tension is arranged on the inner side of the shuttle or side next the raceway. Manifestly it would be impossible to arrange the tension on the side next the raceway except in connection with means for preventing the movement of the shuttle against such raceway, as if the shuttle were forced centrifugally against the raceway the thread, if in such location, would wipe the grease from the raceway.

In the special construction shown I make the shuttle D open at its top at D' leading to the well for the bobbin E which latter is jointed at E' as shown. In the heel of the bobbin I provide the upright groove F, while in the upper side of the shuttle I provide at G a cavity or recess slightly in rear of the nose H, as shown. The tension-spring I is arranged on the inside of the shuttle or side next to the raceway, the construction being that ordinarily called "self-threading," and the spring may in construction be of the ordinary type; but its location, as specified, is an important feature of my invention, as it enables me to have the shuttle open at the top, so the tension of the bobbin can be readily seen, and also permits the proper formation of the stitch, as desired.

The carrier C is formed to receive the shuttle, hold the same from movement centrifugally against the raceway, permit the passage of the thread around the shuttle, expose the bobbin, and also prevent any rolling of the shuttle in the operation of the machine. To this end I provide the carrier C with a cradle C², which is formed at its front end with a horn J, which extends over the shuttle, near the nose thereof, and fits within the cavity G in such manner as to prevent the movement centrifugally of the nose of the shuttle toward the raceway. The cradle is also provided at its rear end or end opposite the horn J with an upright rib K, which fits within the heel-groove F of the shuttle and secures such end

against movement centrifugally against the raceway and prevents any rolling of the shuttle as the same is carried back and forth by the oscillations of the lever. It will be noticed that the shuttle may be readily applied to or removed from the cradle and will be held, when in the cradle, from any movement toward or against the raceway; will also be held so the nose of the shuttle will catch the loop formed by the needle and the operator can see the bobbin without removing the shuttle from the carrier. It will also be noticed that the thread has a direct action from the bobbin, because the tension is on the inside of the shuttle next the raceway.

It will be noticed that my shuttle is provided on its outer side with a rearwardly-facing set-off at *a* near its tip; also, that the shuttle is open on three sides, so the operator can see the condition of the thread on the bobbin without taking out the shuttle. Again, by my construction I provide the carrier with a horizontal portion at *J* and with a vertical portion at *K* for engaging the shuttle and holding the same, as desired.

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

1. The combination of the shuttle provided in its upper side near its nose with a cavity or recess and in its rear end with an upright groove, and the carrier forming a cradle for the shuttle and provided at its front end with a horizontal arm entering the recess or cavity in the nose of the shuttle and having at its rear end an upright rib entering the upright groove of the shuttle, substantially as set forth.

2. The combination of the shuttle provided at its rear end with an upright groove and the carrier therefor provided with an upright rib entering said groove and also provided with means engaging the nose end of the shuttle and adapted to cooperate with the rib and groove at the heel of the shuttle to prevent movement centrifugally of the shuttle against

the raceway, and the raceway, substantially as described.

3. A shuttle-carrier, substantially as described, provided with a horn to lap upon and secure the nose end of the shuttle, and also provided with a rib to enter a groove in the heel end of the shuttle whereby to secure said shuttle and prevent its rolling and the shuttle formed for cooperation with said carrier, substantially as described.

4. A shuttle having on its outer side at its nose an offset providing a space between the shuttle and raceway in rear of said offset, and the tension-spring arranged in the space in rear of said offset and connected with the shuttle, and a carrier for said shuttle constructed to hold the shuttle from outward movement, substantially as set forth.

5. The combination of the shuttle open at its top and outer side whereby to expose the bobbin to view, and provided in its upper side near its nose with a cavity or recess for the horn of the carrier, and provided in its rear end with an upright groove, and the carrier having the horn extending horizontally over the nose of the carrier and entering the recess therein and provided with an upright rib entering the groove in the heel of the shuttle, the latter being unobstructed by the carrier at its side next the raceway and provided with the tension devices on such side, substantially as described.

6. A shuttle provided at its rear end with an upright groove formed to receive the rib of the carrier and also provided within the inner portion of the upper side of its nose with a recess to receive the point of the horn of the carrier, combined with the carrier having an upright lip fitting the rear groove of the shuttle and the horn engaged in the recess thereof, substantially as set forth.

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Witnesses:

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