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Patented Feb. 11, 1902.

H. W. SMITH.
ELECTRIC CIRCUIT CLOSER FOR LOOMS.

(Application filed Feb. 12, 1900.)

(No Model.)

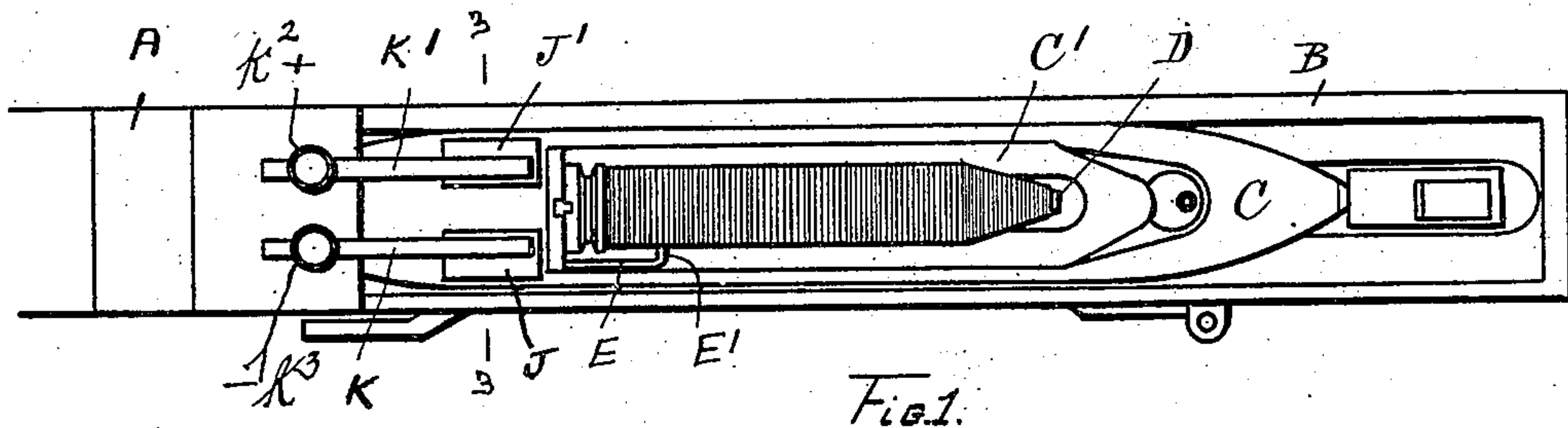


Fig. 1.

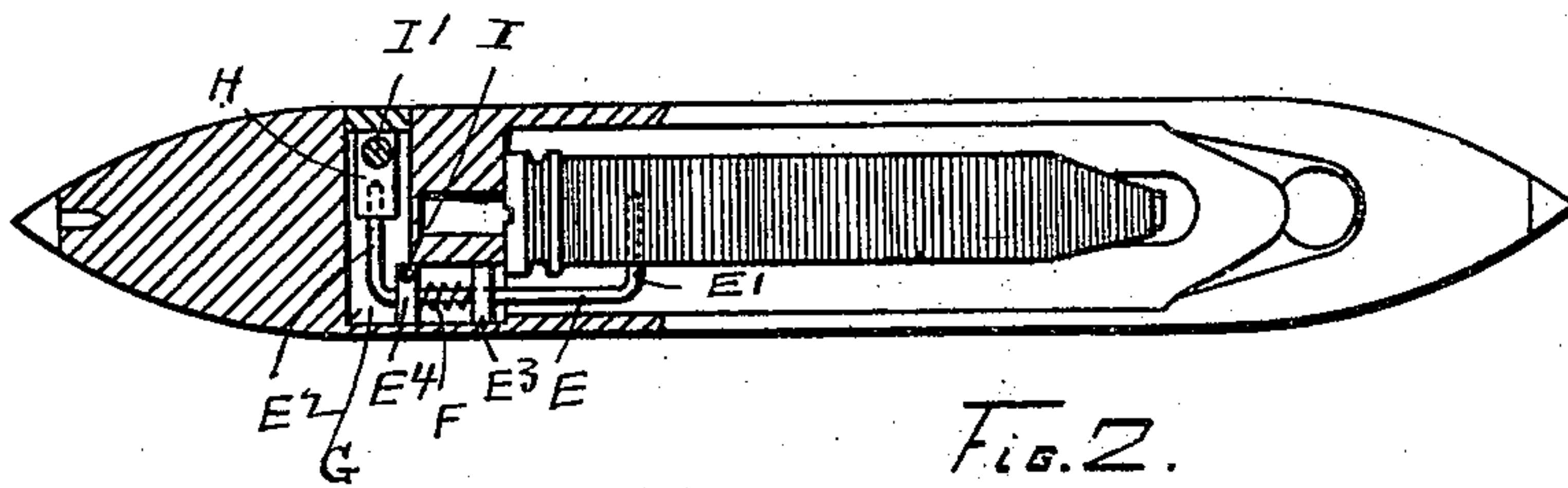


Fig. 2.

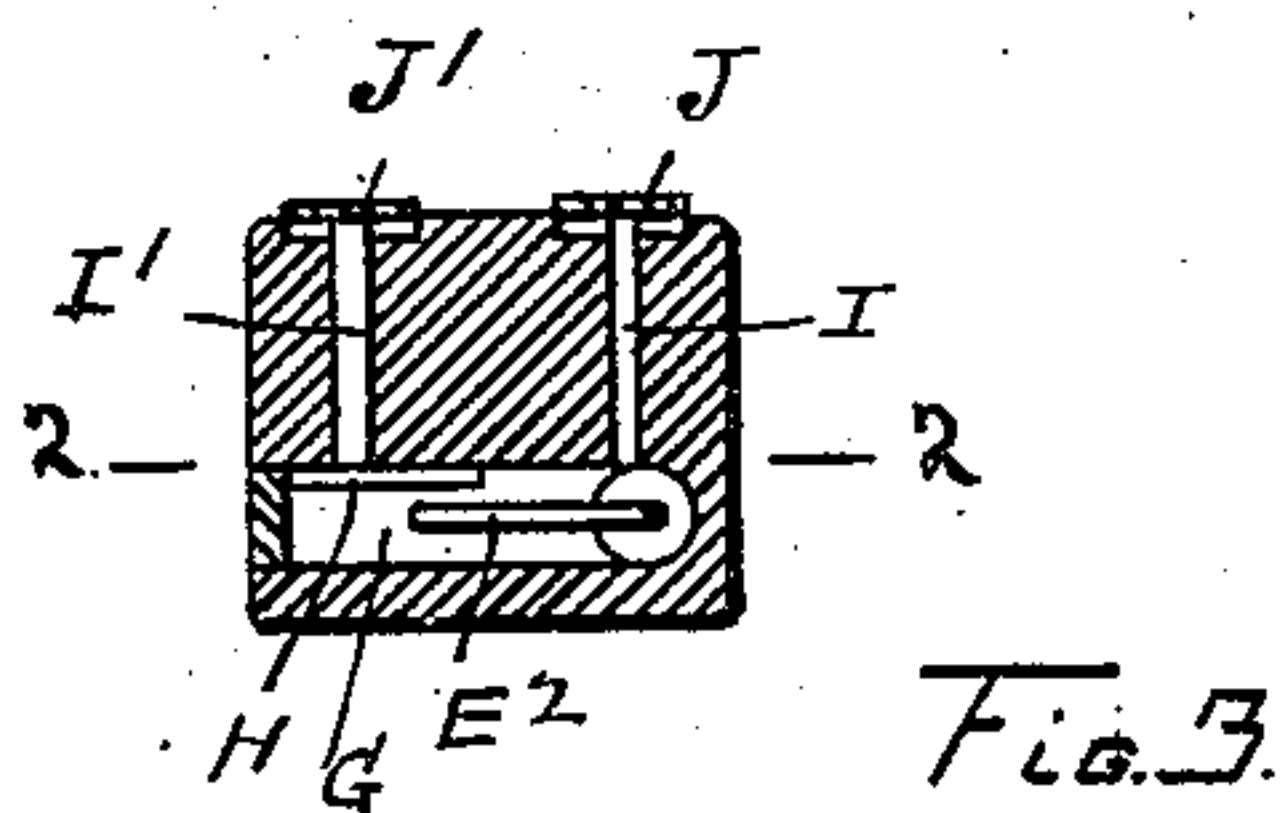


Fig. 3.

Witnesses:

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ELECTRIC-CIRCUIT CLOSER FOR LOOMS.

SPECIFICATION forming part of Letters Patent No. 692,927, dated February 11, 1902.

Application filed February 12, 1900. Serial No. 4,874. (No model.)

To all whom it may concern:

Be it known that I, HARRY W. SMITH, a citizen of the United States, residing at Worcester, in the county of Worcester and Commonwealth of Massachusetts, have invented a new and useful Improvement in Electric-Circuit Closers for Looms, of which the following is a specification, reference being had to the accompanying drawings, forming a part of the same, in which—

Figure 1 represents a top view of a loom-lathe, showing a shuttle-box and shuttle contained therein. Fig. 2 is a top view of a shuttle, with a portion shown in sectional view on line 2 2, Fig. 3; and Fig. 3 is a transverse sectional view on line 3 3, Fig. 1.

Similar reference-letters refer to similar parts in the different views.

The object of my present invention is to provide means for closing an electric circuit at a predetermined period in the operation of a loom as controlled by the withdrawal of the weft from the shuttle for the purpose of energizing an electromagnet, and thereby set in operation auxiliary mechanism—such, for example, as mechanism for stopping the loom, replenishing weft, or for other purposes; and my invention consists in the construction and arrangement of certain devices carried by the shuttle and comprising the terminals of an electric circuit, which are arranged to be brought into electrical connection at a predetermined period in the withdrawal of the weft from the shuttle.

Referring to the accompanying drawings, A denotes a portion of a loom-lathe, B a shuttle-box mounted thereon, and C a shuttle contained in the shuttle-box. The shuttle-body C is provided with a bobbin-chamber C', containing a weft bobbin or carrier D. Journaled in the shuttle-body is a feeler E, consisting of a wire bent at a right angle at each end to form arms E' E². The arm E' projects into the bobbin-chamber beneath the bobbin and is held against the weft by means of a torsional spring F, applied to the spindle E to rock the feeler and press the arm E' against the weft. The arm E² extends beneath a fixed metallic contact-plate H, held in a contact chamber G, formed in the shuttle-body at the base of the bobbin. The feeler E is journaled in metallic bearings E³ E⁴, one of which is elec-

trically connected by a wire I with a contact-plate J, and the fixed contact-plate H is similarly connected by a wire I' with a contact-plate J'. The contact-plates J and J' are preferably placed on the top of the shuttle-body and are arranged to be brought into contact with electrical brushes K K', which are carried by the lathe and are connected with the opposite poles of a battery by means of wires K² K³. As the shuttle enters the shuttle-box the plates J J' are brought into contact with the brushes K K', and the contact-plate H and feeler E become the terminals of an electric circuit. The arm E² is arranged to be depressed and held out of contact with the fixed contact-plate H by the weft on the bobbin; but as the weft is withdrawn in the operation of weaving the feeler E is gradually rocked in its bearings by the action of the torsional spring F, causing the arms E' E² to rise until the arm E² comes in contact with the contact-plate H, thereby completing the circuit. The contact-plate H and arms E' E² are so adjusted that the arm E² and plate H will be brought in contact before the entire withdrawal of weft from the bobbin, causing an electromagnet placed in the circuit in the usual and well-known manner in looms of this class to become energized at a predetermined period in the operation of weaving and before the entire withdrawal of weft from the bobbin.

When the bobbin is removed from the shuttle, the torsional spring F holds the arm E² in contact with the plate H and the arm E' in a raised position in the path of the bobbin as it is inserted in the shuttle. The insertion of a bobbin filled with weft will press the arm E' downward, thereby rocking the feeler E and carrying the arm E² out of contact with the plate H. As the operation of weaving proceeds and the weft is withdrawn from the bobbin the arms E' E² will gradually rise by the action of the torsional spring F until the arm E² is brought into contact with the plate H, thereby electrically connecting the terminals and completing the circuit whenever the shuttle enters the shuttle-box and brings the contact-plates J J' into contact with the brushes K K'.

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

1. In an electric-circuit closer for looms,

the combination with a shuttle-body having a pair of contact-plates and adapted to support a weft carrier or bobbin, a rocking feeler journaled in the shuttle-body and provided
5 with arms projecting angularly therefrom, a spring applied to rock said feeler to hold one of said arms against the weft, and to move the other of said arms into electrical connection with one of the contact-plates as the weft
10 is withdrawn, and means for electrically connecting the feeler with the other of said plates.

2. In an electric-circuit closer for looms, the combination with a shuttle-body, of a
15 feeler journaled in said shuttle-body, means for rocking said feeler in one direction, an arm projecting angularly from said feeler arranged to come into contact with the weft, whereby the rocking motion of the feeler is
20 limited, a second arm on said feeler forming one of the terminals of an electric circuit, and a contact-plate forming the other terminal of the electric circuit and arranged in the path of said second arm, whereby the circuit
25 is closed as the weft is withdrawn.

3. In an electric-circuit closer for looms, the combination with a shuttle-body having a bobbin-chamber and a contact-chamber, of a rocking feeler having one end extending
30 into the bobbin-chamber and the opposite end extending into the contact-chamber, means

for rocking the feeler in one direction, an arm arranged on said feeler to bear against the weft in the bobbin-chamber, a fixed contact-surface in the contact-chamber, and a second
35 arm on said feeler arranged to strike against said contact-surface as the weft is withdrawn, substantially as described.

4. In an electric-circuit closer for looms, the combination with the shuttle-body, of a
40 feeler provided with arms projecting angularly therefrom, means for moving the feeler axially to press one of said arms toward the weft-carrier, and a contact-plate in the path of movement of the other arm of the feeler.
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5. In an electric-circuit closer for looms, the combination with the shuttle-body, of a feeler journaled therein, means for turning
50 said feeler about its longitudinal axis, said feeler being provided with arms one of which is adapted to bear upon the weft carried by the shuttle, and a contact-plate in the path of movement of the other of said arms.

In testimony whereof I have signed my name to this specification, in presence of two
55 subscribing witnesses, this the 24th day of January, 1900.

HARRY W. SMITH.

Witnesses:

RUFUS B. FOWLER,
AVA T. MURPHY.