

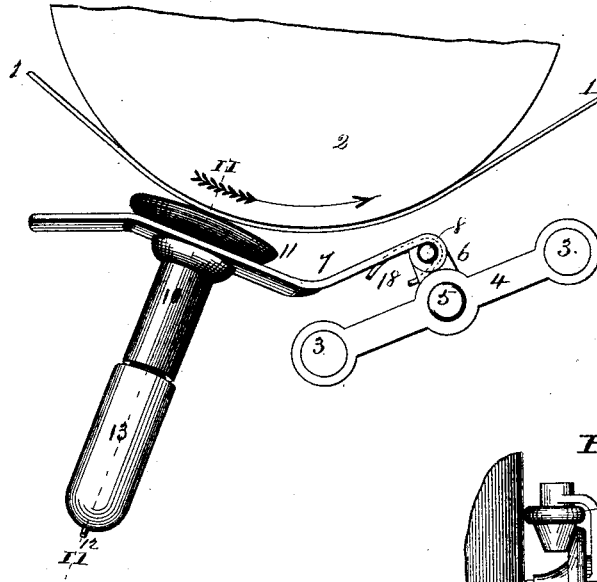
(No Model.)

J. BOYER.  
MARKER FOR RECORDING MACHINES.

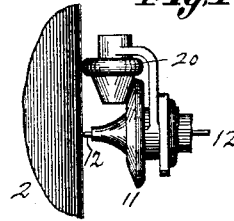
No. 456,668.

Patented July 28, 1891.

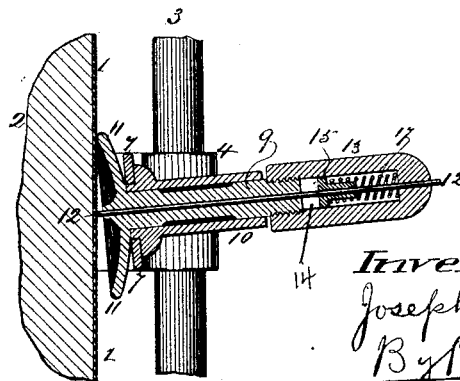
*Fig. I.*



*Fig. IV.*



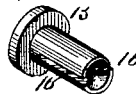
*Fig. II.*



*Attest;*  
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*Fig. III.*



# UNITED STATES PATENT OFFICE.

JOSEPH BOYER, OF ST. LOUIS, MISSOURI.

## MARKER FOR RECORDING - MACHINES.

SPECIFICATION forming part of Letters Patent No. 456,668, dated July 28, 1891.

Application filed April 26, 1890. Serial No. 349,683. (No model.)

*To all whom it may concern:*

Be it known that I, JOSEPH BOYER, of the city of St. Louis, in the State of Missouri, have invented a certain new and useful Improvement in Recorders, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming part of this specification.

This is a device to impart an axial rotary motion to the stylus or pencil used in inscribing the record on the record sheet or strip. The points of novelty will be set forth in the claims.

Figure I is an end view of the improvement. Fig. II is a section at II II, Fig. I. Fig. III is a perspective view of the collar of the stylus or pencil. Fig. IV is a modification.

1 is a strip or ribbon of paper on which the record is made, the paper having uniform endwise movement.

2 is a roller over whose surface the paper passes, the roller and paper moving in the direction indicated by the arrow.

3 3 are guide-rods parallel with the axis of the roller.

4 is a cross-head sliding back and forth upon the guide-rods in a line parallel to the axis of roller 2.

5 is a rod fixed to the cross-head and forming the connection with a governor or other device by which motion is imparted to the cross-head 4 on any change in speed or pressure in the moving part or other thing by which the governor or other device is actuated.

6 is a lug upon the cross-head, to which an arm 7 is connected by a joint 8.

9 is a spindle supported on the arm 7 and turning freely in its box or bearing 10.

11 is a disk forming the end or head of the spindle and adapted to bear at one point against the surface of the paper, so that the endwise movement of the paper causes the rotation of the spindle. In order to cause only one point of the disk to bear upon the paper, the disk is set somewhat obliquely to the paper, as shown in Fig. II. The spindle box or bushing 10 is fixed to the arm 7. The spindle has an axial bore through which the

stylus, pencil, or other marker 12 passes easily and rests against the paper.

13 is a cap screwed on the outer end of the spindle and having a cylindrical socket 14. The stylus or pencil passes through a collar 15, which works easily in the socket 14, and which is made to grasp the stylus or pencil with some force. To enable the collar to be secured to the stylus or pencil it is slotted at 16 and the parts pressed upon the stylus or pencil.

17 is a spiral spring whose ends bear, respectively, against the collar 15 and the inner end of the socket, so as to push the stylus or pencil against the paper, and as it is inclined a fresh part will be constantly presented to the paper and prevent the end of the stylus or pencil wearing flat, and consequent failure in the marking of the paper. The disk 11 is pressed against the paper by a spring 18, that is upon the pintle of the hinge or joint 8, and whose ends bear, respectively, against the arm 7 and the cross-head.

In the modification shown in Fig. IV the disk 11 does not come in contact with the paper, but a friction-wheel 20 is interposed between the paper and the disk and in frictional contact with both, so that the spindle 9 is caused to turn by the motion of the paper. With this arrangement my invention may in a measure be carried out, though I prefer to set the marker obliquely, as already described.

I claim as my invention—

1. The combination, in a recorder, of a moving sheet and a rotating marker of a material worn away by friction against the sheet, bearing against the sheet, and having movement crosswise to the movement of the sheet, substantially as and for the purpose set forth.

2. The combination, in a recorder, of a moving sheet and a rotating marker oblique to the sheet and having movement crosswise to the movement of the sheet, substantially as and for the purpose set forth.

3. The combination, in a recorder, of the roller 2, the sheet 1 upon the surface of the roller, the marker set in a revolving spindle having rectilinear movement parallel with the axis of the roller, and a disk upon the

spindle actuated by frictional connection with the sheet 1, substantially as and for the purpose set forth.

4. The combination, in a recorder, of a  
5 roller 2, a cross-head having movement parallel with the axis of the roller, a spring-arm on the cross-head carrying a bearing 10, a spindle 9, turning in the bearing and carrying in an axial socket a marker 12, and a friction-disk 11 on the spindle 9, substantially as  
10 and for the purpose set forth.

5. The combination, in a recorder, of the roller 2, the cross-head 4, having movement parallel with the axis of the roller, spring-arm 7 on the cross-head bearing 10, fixed to  
15 the spring-arm, spindle 9, having an axial socket, marker 12, movable in the socket, spring 17, forcing the marker forward in the

socket, and friction-disk 11 upon the spindle, substantially as and for the purpose set forth. 20

6. The combination, in a recorder, of a marker, a spindle 9 in which the marker is axially inserted, and a friction-disk 11 upon the spindle, substantially as and for the purpose set forth. 25

7. The combination, in a recorder, of a roller 2, a spindle 9, set obliquely to the roller, a marker 12, carried axially in the spindle, and a friction-disk 11 upon the spindle, all  
30 substantially as and for the purpose set forth.

JOSEPH BOYER.

In presence of—

THOS. KNIGHT,

E. S. KNIGHT.