

(No Model.)

3 Sheets—Sheet 1.

F. PURDY.

MANUFACTURE OF MAINSPRINGS FOR WATCHES.

No. 557,021.

Patented Mar. 24, 1896.

Fig. 1.

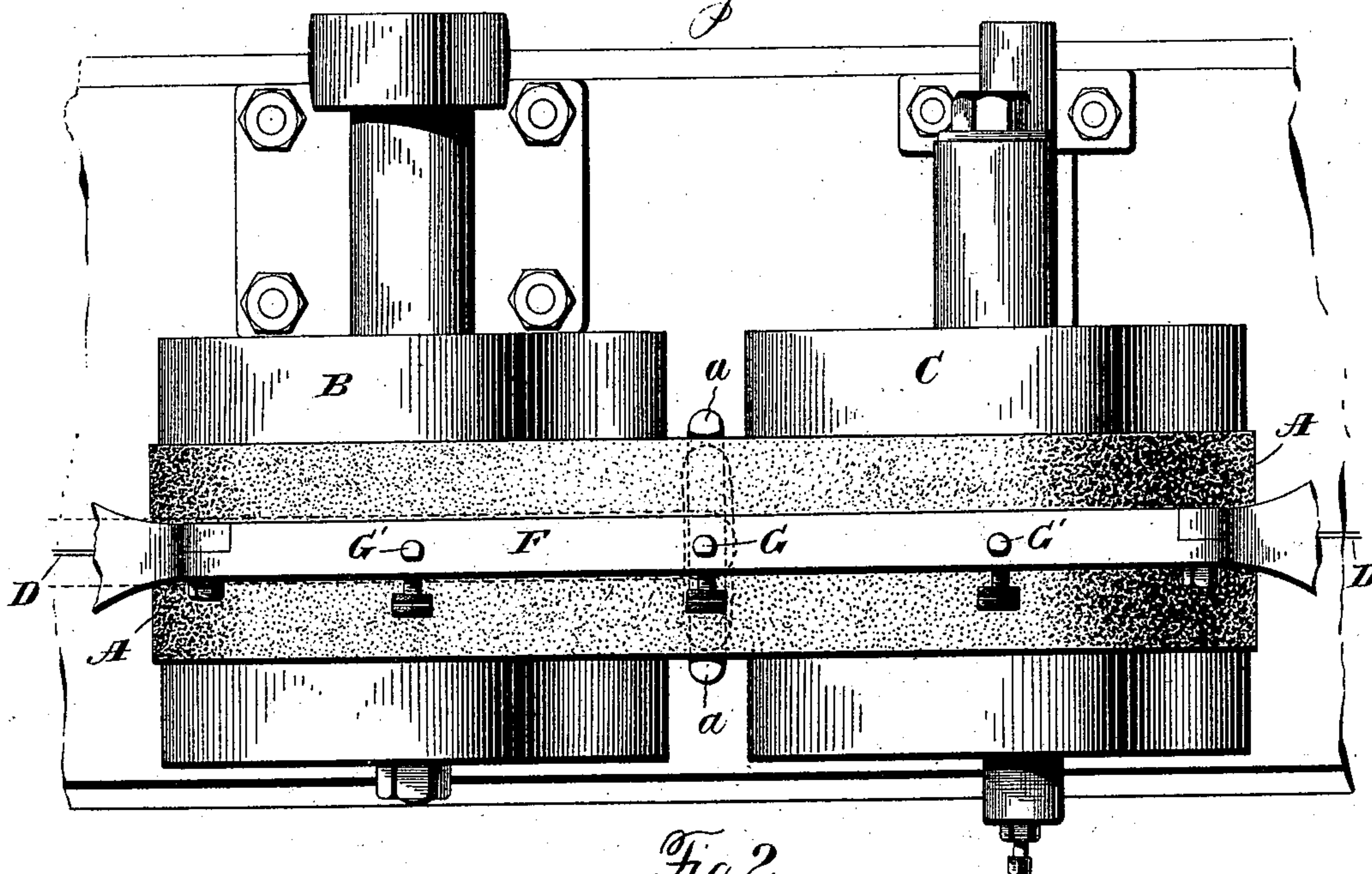
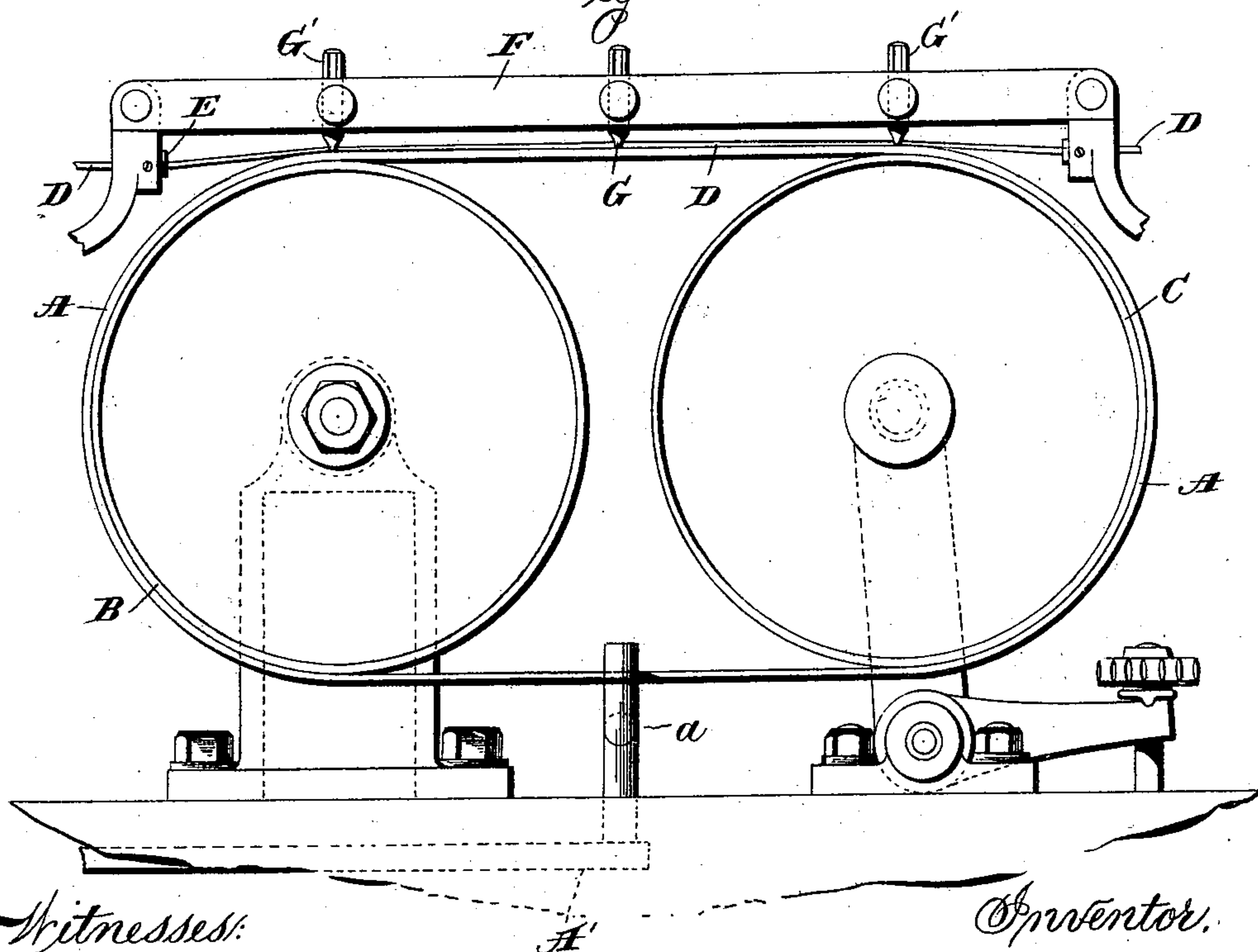


Fig. 2.



Witnesses:
Jas. C. Hutchinson.
Wm. Williamson.

Inventor.
Fred Purdy, by
Brindle & Russell, his Attys

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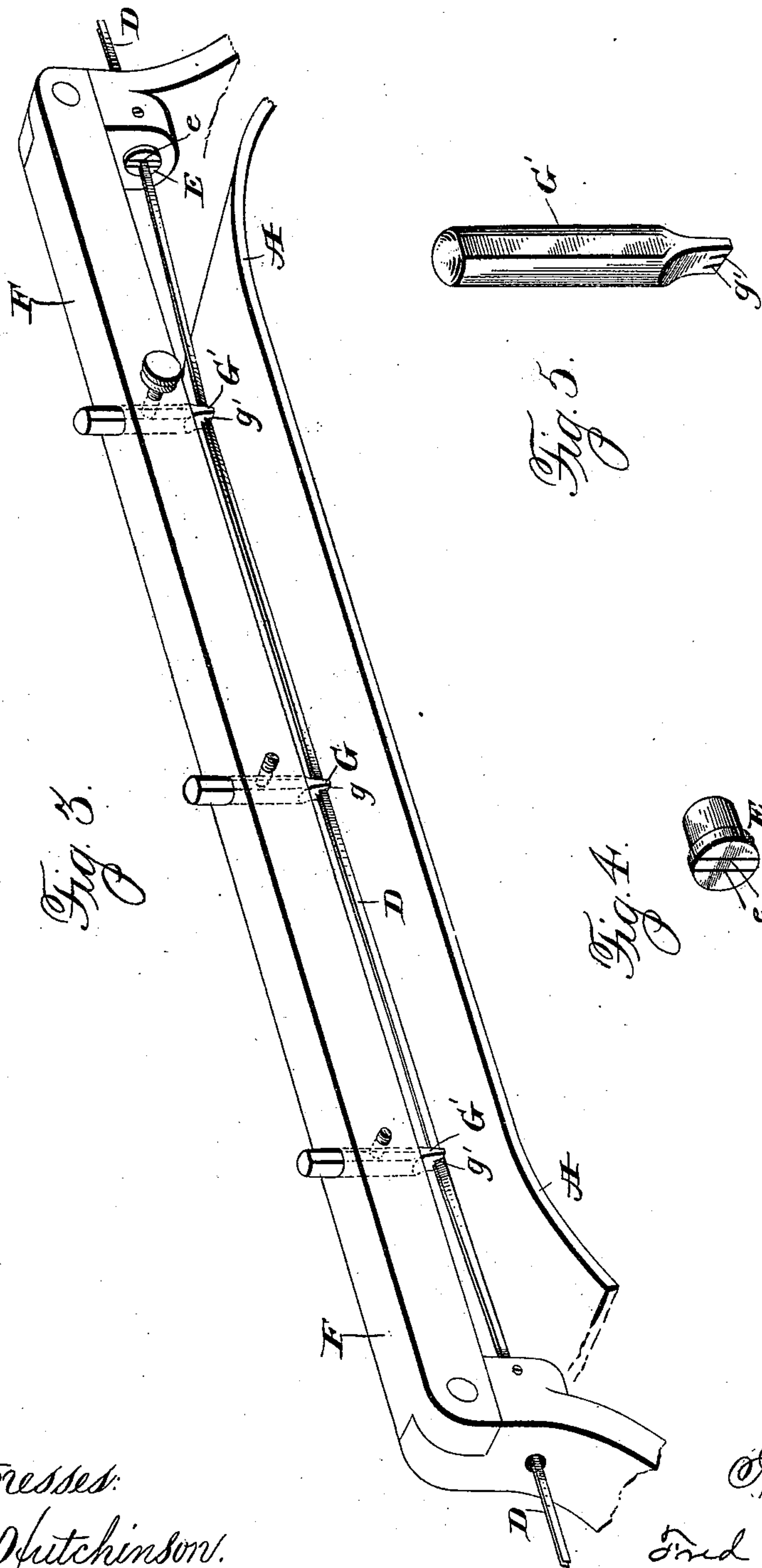
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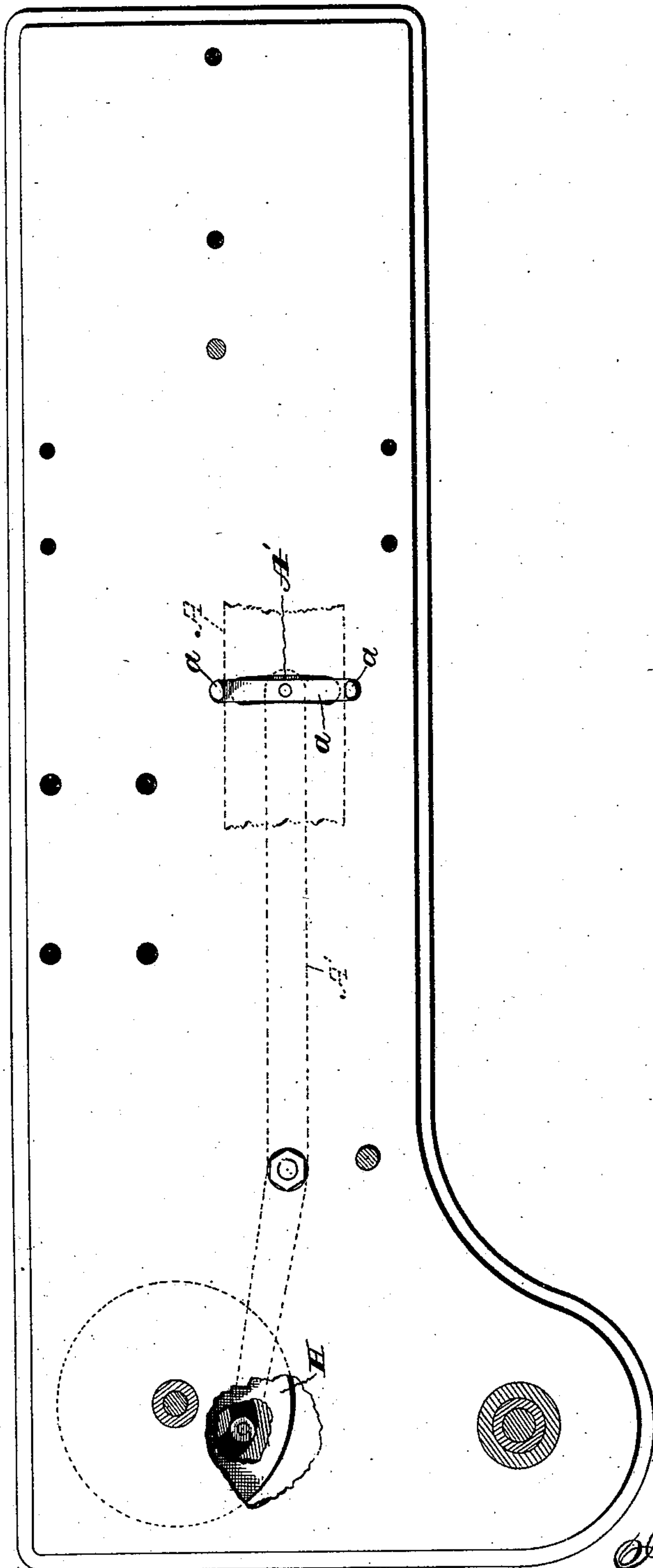
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Fig. 6.



Witnesses:
James Hutchinson.
Henry C. Hazard

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UNITED STATES PATENT OFFICE.

FRED PURDY, OF ELGIN, ASSIGNOR TO THE ELGIN NATIONAL WATCH COMPANY, OF CHICAGO, ILLINOIS.

MANUFACTURE OF MAINSPRINGS FOR WATCHES.

SPECIFICATION forming part of Letters Patent No. 557,021, dated March 24, 1896.

Application filed May 11, 1893. Serial No. 473,869. (No model.)

To all whom it may concern:

Be it known that I, FRED PURDY, of Elgin, in the county of Kane, and in the State of Illinois, have invented certain new and useful
5 Improvements in the Manufacture of Mainsprings for Watches; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, in which—

10 Figure 1 is a plan view of the mechanism preferably employed. Fig. 2 is a side elevation of the same. Fig. 3 is a perspective view of the upper portion of said mechanism and shows the spring-wire in its passage over the
15 abrading-surface. Figs. 4 and 5 are perspective views of the guides employed for controlling the position of said spring-wire, and Fig. 6 is a top plan view with parts removed and broken away to show a means for moving the
20 abrading-belt laterally.

Letters of like name and kind refer to like parts in each of the figures.

The object of my invention is to enable the edges of mainspring-wire to be rounded and
25 finished at one operation; and my said invention consists in the mechanism employed, substantially as and for the purpose hereinafter specified.

In the carrying of my invention into practice I preferably employ for an abrading
30 mechanism a belt A, which has its outer face coated with a suitable abrasive material and is arranged upon and around two pulleys B and C that are adapted to be rotated, so as to
35 give to such belt a continuous motion in one direction. Said belt is also, by any suitable means, given a laterally-reciprocating motion, so as to cause so much of its width as may be desired to be presented to an article
40 passed longitudinally over the same. The means shown in the drawings for this purpose consists of a forked arm *a*, that engages the edges of the lower portion of the belt A, and which is carried by a horizontally-vibratory bar A'. A cam H, as shown in Fig. 6,
45 may be employed to continuously actuate the bar A', so that the lateral movement of the belt may be simultaneous with its longitudinal movement.

50 The spring-wire D to be operated upon is by any suitable means passed longitudinally

over the abrading mechanism A in a line with its longitudinal axis, and in order that its edge may be properly presented for action by such surface said wire passes through two
55 guides E and E, that are located near the outer side of the pulleys B and C, and are held in a suitable support F, which extends lengthwise of and above said part A. Each of said guides contains a longitudinal slot *e*, that corresponds in transverse size and shape to the
60 like features of said spring-wire, and while permitting of the free passage of the latter permits of no material circumferential movement of the same.

The guides E and E are arranged with their slots in a vertical line, and midway between the same is a third guide G, which consists of a pin that projects downward through the support F and within its lower end is provided with a longitudinal slot *g* that is also
70 vertical, while between each of said guides E and E and said guide G is a guide G', which is similar to the latter in construction and has its slot *g'* formed with an inclination from
75 a line perpendicular to the plane of the abrading-surface A, that represents the extreme inclination in one direction of the spring-wire D, with reference to the same, which is
80 necessary in order that the edge of said wire may be given the desired curved or rounded shape. The oppositely-located guide G' has its slot arranged in a line opposite to that of the first-named guide G'.

By the described construction and arrangement of guides the spring-wire enters and leaves the field of abrasive action in a position perpendicular to the face of the abrading device, while between the points of entry and exit it is turned to one extreme of inclination and then to the opposite extreme, so that in passing over the abrading-surface each portion of its edge is presented thereto with accuracy and uniformity and upon a curved line that is determined by the extreme
95 opposite inclinations given to said wire.

If desired, the wire may be caused to enter and leave the field of action in oppositely-inclined positions, in which event a number of guides would be placed at different points
100 between the end guides, with such relative inclinations of their slots as might be neces-

sary to hold the wire in a regularly-twisted form.

Having thus described my invention, what I claim is—

5 1. As a means of rounding and finishing the edges of mainsprings, the combination of a series of guides adapted to twist the spring, and a flat abrading-surface that is continuous from one guide to another, substantially
10 as and for the purpose specified.

2. As a means for rounding and finishing mainsprings, the combination of a series of

guides, adapted to twist the spring, a longitudinally-movable abrading-surface that is adapted to be simultaneously vibrated later- 15 ally, and means for thus vibrating the same, substantially as and for the purpose shown.

In testimony that I claim the foregoing I have hereunto set my hand this 6th day of April, 1893.

FRED PURDY.

Witnesses:

GEO. S. PRINDLE,
CARLOS H. SMITH.