

(No Model.)

A. C. BECKWITH.
HAMMER.

No. 559,660.

Patented May 5, 1896.

Fig 1

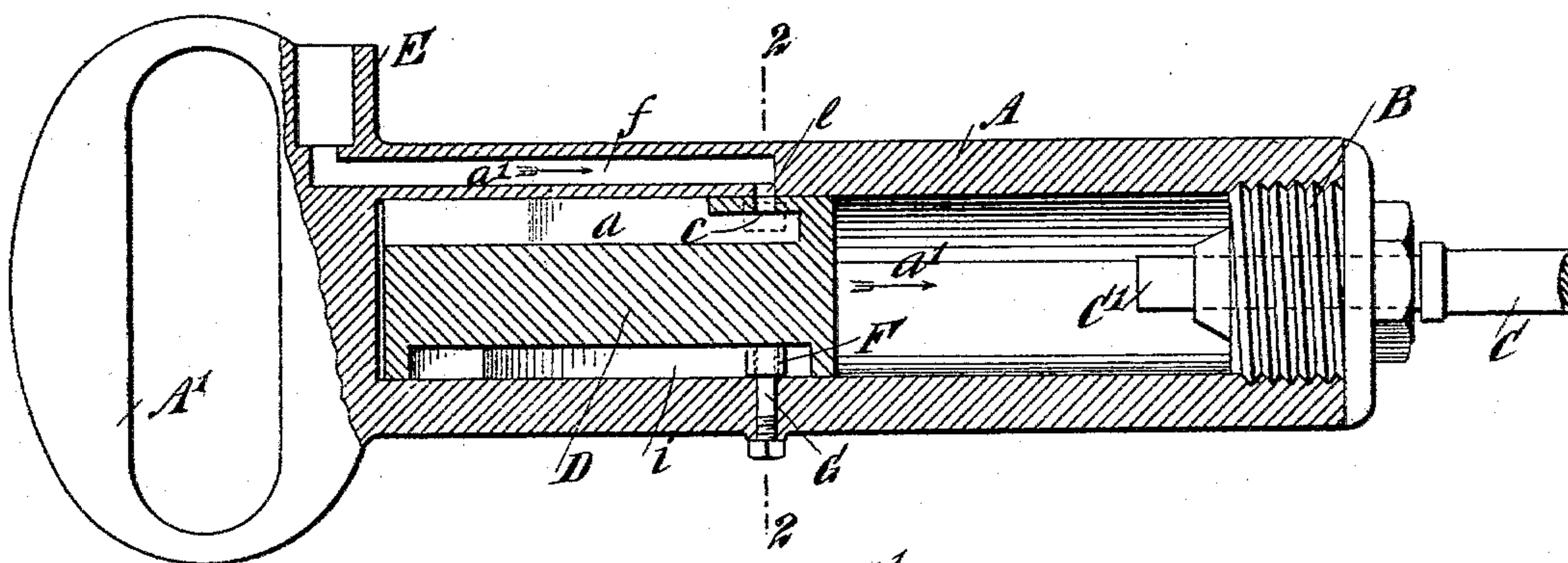


Fig 2

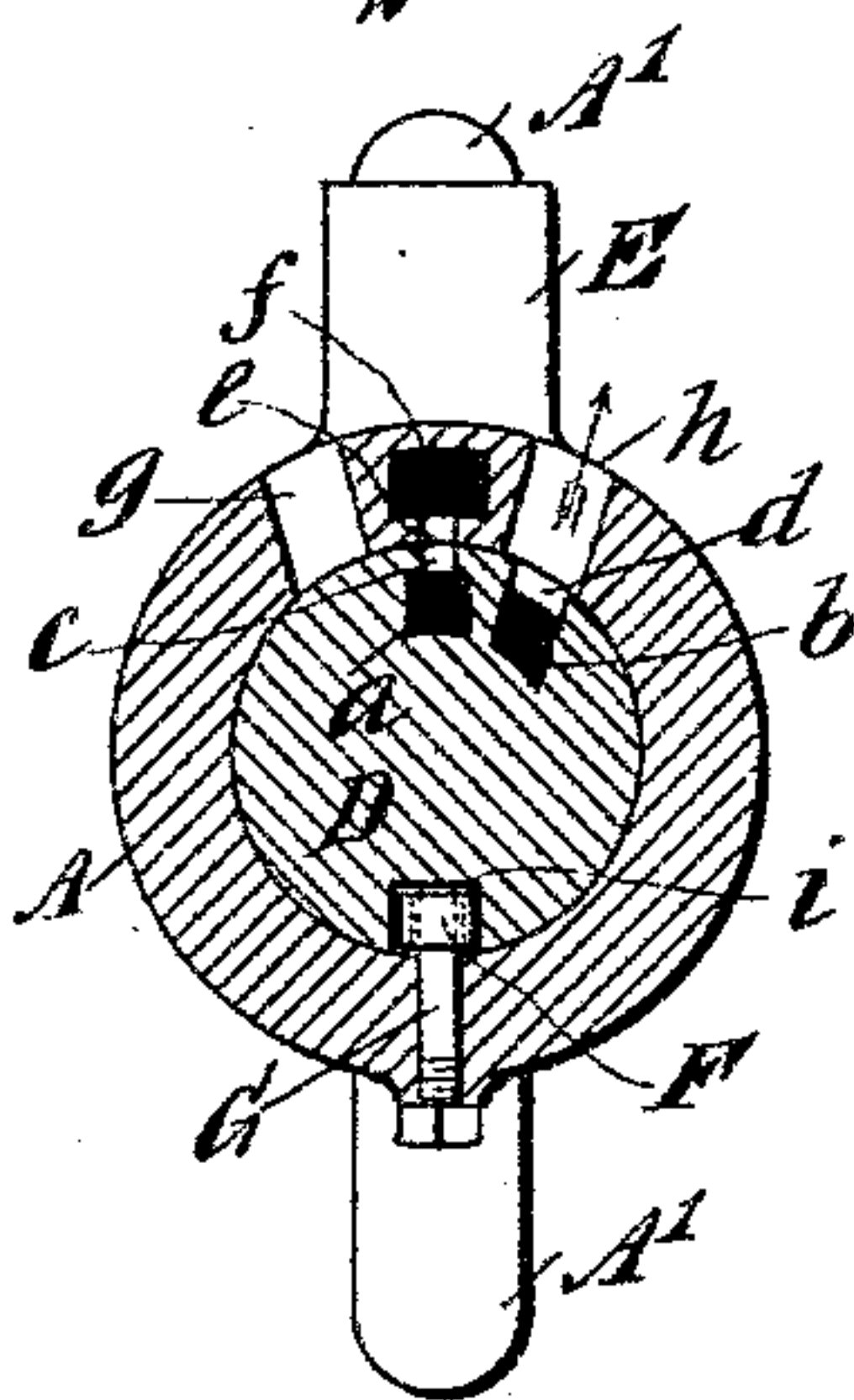


Fig 3

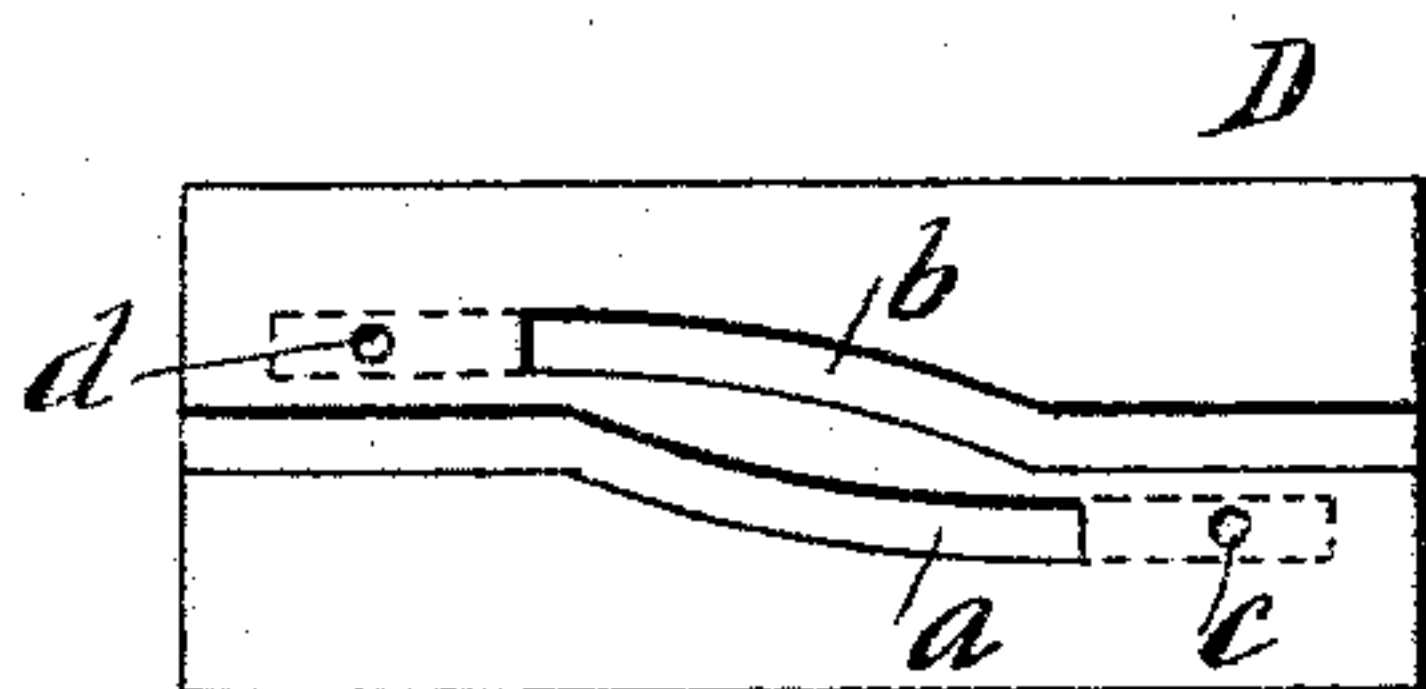
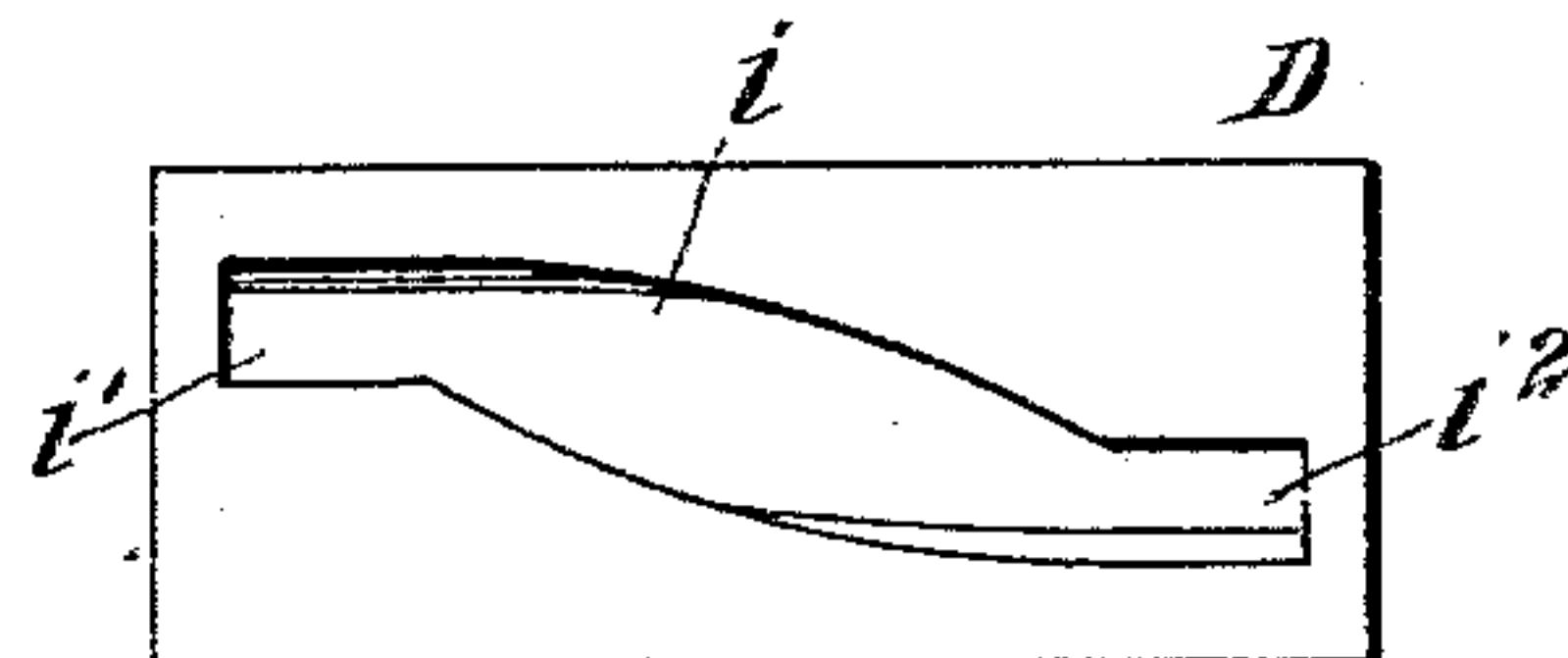


Fig 4



WITNESSES:

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ARTHUR C. BECKWITH, OF CHICAGO, ILLINOIS.

HAMMER

SPECIFICATION forming part of Letters Patent No. 559,660, dated May 5, 1896.

Application filed October 26, 1895. Serial No. 566,939. (No model.)

To all whom it may concern:

Be it known that I, ARTHUR CLINTON BECKWITH, of Chicago, in the county of Cook and State of Illinois, have invented a new and Improved Hammer, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved hammer which is simple and durable in construction and arranged to actuate a chisel or other tool by means of a motive agent in a simple and effective manner.

The invention consists principally of a cylinder provided with a bearing for a chisel or other tool, the cylinder having a motive-agent inlet-port and exhaust-ports, and a piston fitted to slide and to turn in the said cylinder and adapted to strike the said tool, the piston being provided with channels and ports adapted to register alternately with the inlet-port and one of the said exhaust-ports.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter, and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the views.

Figure 1 is a sectional side elevation of the improvement. Fig. 2 is a transverse section of the same on the line 2 2 of Fig. 1. Fig. 3 is a plan view of the piston, and Fig. 4 is an inverted plan view of the same.

The improved hammer is provided with a cylinder A, formed at one end with a handle A' and carrying at its other end a bearing B, in which is fitted to slide the shank C' of a chisel C or other tool adapted to be actuated by the hammer. In the cylinder A is fitted to slide and to turn a piston D, formed on its top with the longitudinally-extending grooves a and b, terminating in the ports c and d, respectively. The groove a extends from the outer end of the piston to within a short distance of the inner end, and the other groove b extends from the inner end of the piston to within a short distance of the outer end, as will be readily understood by reference to Fig. 3.

The ports c and d are adapted to alternately register with a port e, formed in the wall of the cylinder A and leading to a longitudinally-

extending channel f, connected at its outer end with an apertured boss E, connected by a pipe, hose, or the like with the suitable source of motive-agent supply. The ports c and d are also adapted to register alternately with exhaust-ports g and h, formed in the wall of the cylinder A on opposite sides of the port e.

In the under side of the piston D is formed a spiral groove i, terminating in the straight ends i' i'', as is plainly shown in Fig. 4, and into this groove extends a friction-roller F, held on the inner end of a bolt G, screwing in the cylinder A.

The operation is as follows: When the several parts are in the position illustrated in Fig. 1, the port c registers with the inlet-port e and the inner end of the groove b registers with the exhaust-port h. The motive agent passing into the channel f passes through the registering ports e and c into the groove a to exert a pressure on the piston D and cause the latter to slide forward in the direction of the arrow a', the piston finally striking with its inner end the projecting shank C' of the tool C, so as to drive the latter outward and firmly in engagement with the material under treatment. The piston D in its forward travel in the cylinder is caused to turn by the action of the friction-roller F on the spiral groove i, so that finally the groove a is disconnected from the port e, and when the piston D arrives at the end of its outward stroke the port d is in register with the port e, and the motive agent now passes through the said port into the groove b and to the inner end of the cylinder A, to act on the inner end of the piston D and force the latter in the inverse direction of the arrow a—that is, on the back stroke. By the piston D being turned upon arriving at the end of its stroke the channel a is forced to register with the exhaust-port g', so that the steam previously passed into the cylinder by the registering ports e c and groove a is now exhausted to the outside. When the piston D is on the return stroke, it is again turned by the action of the friction-roller F in the groove i, so that the groove b is disconnected from the port e and the port c is again moved in register with the port e, as shown in Fig. 1, and at the same time the turning of the piston D brings the

groove *b* into register with the exhaust-port *h* and permits the motive agent to escape to the outside on the next forward stroke of the piston.

5 It will be seen that the device is very simple in construction, being composed of but two principal parts, the cylinder A and the piston D, the latter forming its own valve for controlling the admission and exhaust of the
10 motive agent.

It is understood that in using the hammer the operator by having hold of the handle A' can conveniently guide the tool C on the article or material to be treated.

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

1. A hammer, comprising a cylinder having a bearing for a tool at one end and provided
20 with a longitudinal channel having its outer end connected with a motive-agent supply, an inlet-port leading from the inner end of the channel into the cylinder and exhaust-ports on opposite sides of the inlet-port, and
25 a piston fitted to slide and turn in the cylinder, the piston being provided with two grooves, one extending from the outer end of

the piston to within a short distance of the inner end and the other extending from the inner end to within a short distance of the
30 outer end, each of said grooves terminating in a port, substantially as described.

2. A hammer, comprising a cylinder having a bearing for a tool at one end and provided with a longitudinal channel, an apertured
35 boss with which the outer end of the channel communicates, a port leading from the inner end of the channel into the cylinder, and exhaust-ports on opposite sides of the inlet-port, a piston in the cylinder and provided on one
40 side with two grooves, one extending from the outer end of the piston to within a short distance of the inner end and the other from the inner end to within a short distance of
45 the outer end, each groove being provided with a port, the piston also being provided with a spiral groove, and a roller carried by the cylinder and working in the said spiral groove, substantially as herein shown and de-
scribed.

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Witnesses:

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