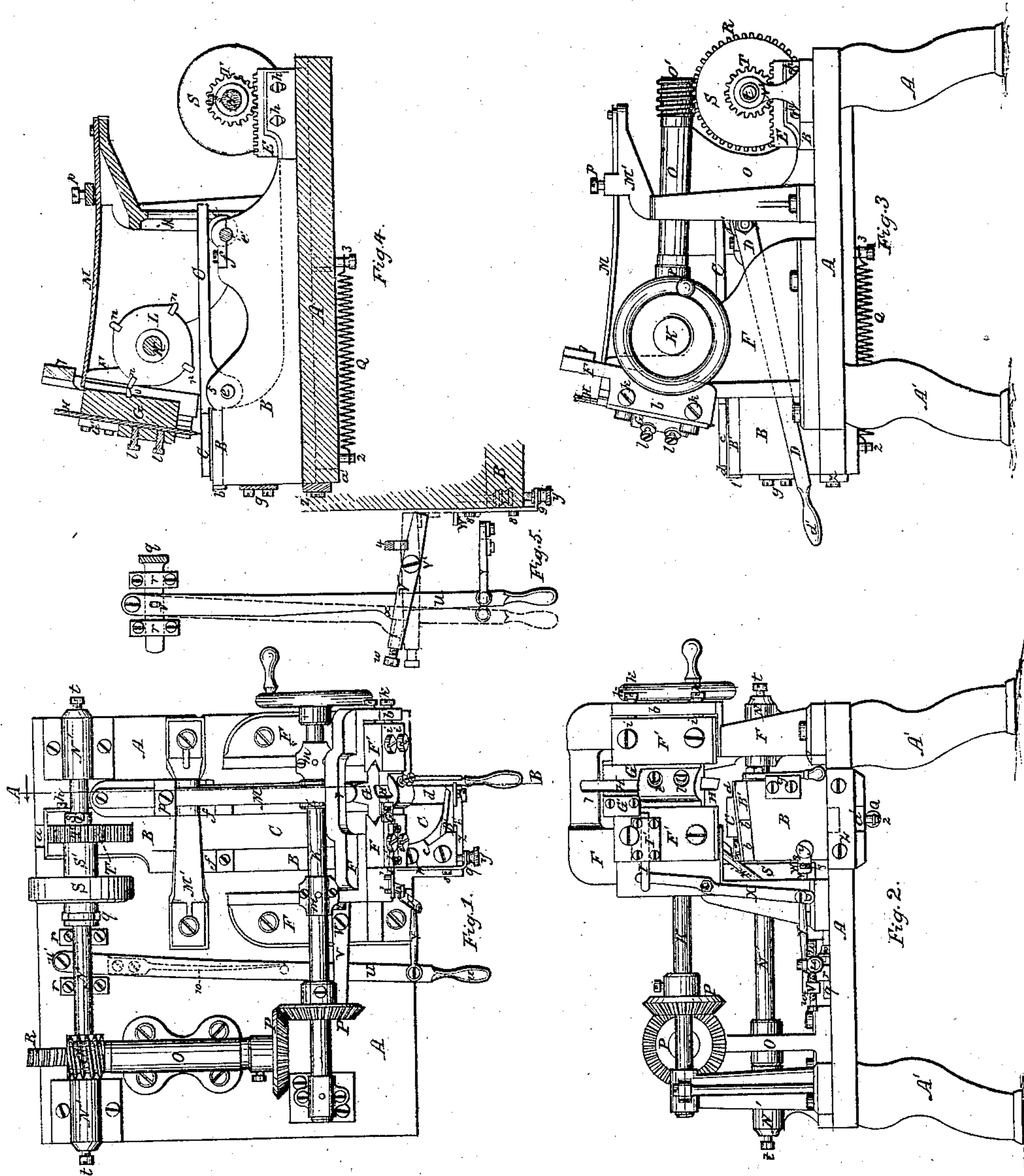


S. D. Sheldon.

Serrating Sickle Sections.

N^o 86,462.

Patented Feb. 2, 1869.



Witnesses

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SAMUEL D. SHELDON, OF FITCHBURG, MASSACHUSETTS.

Letters Patent No. 86,462, dated February 2, 1869.

IMPROVED MACHINE FOR SERRATING SICKLE-SECTIONS.

The Schedule referred to in these Letters Patent and making part of the same.

Know all men by these presents:

That I, SAMUEL D. SHELDON, of Fitchburg, in the county of Worcester, and Commonwealth of Massachusetts, have invented certain new and useful Improvements in Machines for Serrating Sickle-Sections for Mowers and Reapers; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 represents a plan view of my serrating-machine;

Figure 2 represents a front elevation of my serrating-machine;

Figure 3 represents a view of the right-hand side of the same;

Figure 4 represents a section at line A B, fig. 1; and

Figure 5 represents the shipper and catch-levers, showing their operation.

To enable those skilled in the art to which my invention belongs, to make and use the same, I will proceed to describe it more in detail.

The nature of my invention consists—

First, in combining the anvil-block with the bed of the machine, in the peculiar manner hereafter described.

Second, in combining and arranging the anvil-block and the drop for supporting the chisel or cutter in relation to each other, as hereafter set forth.

Third, in the combination, with the drop, of an adjustable spring, in the peculiar manner and for the purposes hereafter described.

Fourth, in the combination, with the drop and shipper-lever, of a catch-lever and holding-device, as hereafter explained.

Fifth, in combining a friction-clutch with the shaft which operates the anvil-block, as hereafter described.

Sixth, in combining an adjustable rack with the anvil-block and its operating-gear.

Seventh, in the combination, with the clamping-lever, of an eccentric and hand-lever, as hereafter described.

Eighth, in the combination, with the anvil-block, of a bolster and face-plate, as and for the purposes hereafter explained.

Ninth, in the combination, with the anvil-block, of an adjusting-device, to regulate its motion, as will be hereafter explained.

Tenth, in the combination, with the channelled and slotted bed, of a stop-piece, as hereafter described.

Eleventh, in the construction and combination of the parts of a sickle-section-serrating machine, as hereafter set forth.

In the drawings—

The part marked A is the bed-piece, or table, supported by legs or standards, A', at a convenient height for the operator.

Across the surface of the bed-piece A, is a groove, *a*, extending from front to rear, in which fits and slides

the guide-piece upon the bottom of the anvil-block B, as indicated in the drawings, figs. 2 and 3, by dotted lines.

The top surface of the anvil B is inclined downward from one side to the other, and is furnished with a steel face-plate, B'. The edge thereof, upon which the chisel falls, is bevelled off, in a direction opposite to the incline of the surface of the anvil B.

At the side of the face-plate B', and of equal thickness, is a bolster, *b*, secured to the anvil, and having, at its fore-part, a flange, *b'*, extending by the corner of the plate B', whereby the latter is retained in proper position, without being bolted, thus allowing the face-plate B' to be readily changed in case of wear or accident.

On the top of the bolster *b* is secured a gauge-piece, *c*, made to conform to the shape of the section *d*, and against which the sections are placed to bring them into proper position beneath the chisel, where they are retained by means of the clamp-lever C.

The lever C is secured to the anvil by the journal *e*, which passes through ears, 5, on the anvil-block.

The long arm of the lever extends back, and rests upon an eccentric, C', upon a shaft, *e'*, extending from side to side of the anvil-block B, and working in the bearings *f*, as fully indicated in the drawings.

To the end of this shaft *e'*, is fastened a lever, D, that extends forward, and is furnished with a handle, *d'*, at the end.

By pressing down lever D, the eccentric C' raises the rear end of lever C, thereby pressing the front end firmly on to the section *d*, and holding it securely while it is serrated.

The lever D is held down by being latched under the piece *g*, fastened to the front of the anvil D, for that purpose.

At the rear end of the anvil-block is fastened a rack, E, and so arranged with the slots and screws *h*, in the rear part of the anvil-block, that said rack can be adjusted up or down, for a purpose hereafter explained.

Above the anvil B, and supported from the bed-piece A, at the sides thereof, is a frame, F, and to its face there are bolted guides, F', between which the drop or hammer, G, rises and falls, sliding freely up and down in the grooves made for that purpose in the inner edges of the guides F'.

One of the guide-pieces can be adjusted by means of the slots *i* in the guide-plate, and the set-screws *k*, which pass through a flange, 6, at the side of the frame F, as shown in the drawings, whereby the parts can be adjusted to compensate for any wear.

The upper part of the frame F, with the guide-plate F' and the drop G, is inclined backward, so that the chisel H will strike the section at the required angle.

The chisel H passes down through an opening in the projection on the face of the drop G, and is held in place by means of the set-screws *l l*.

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To one of the top corners of the drop G, is fastened a plate, G', whereby the drop G is retained in an elevated position, when the machine is not in motion, by catching upon the end of a catch-bar, I, which slides back and forth through the piece I', fastened to the face of one of the guide-plates F'.

Back of the frame F, is the main shaft K, to which the power is applied.

It is supported and turns in the bearings *m m*, upon the frame F.

Upon this shaft, in rear of the drop, is a tilt-wheel, L, furnished with points, *n*, which engage the notch *o*, in the back side of the drop G, thereby raising the drop as the shaft revolves.

The notch *o* has a steel lining, which can be easily replaced when worn out.

The drop G is thrown downward by means of a spring, M, one end of which rests on the drop G, and the other end is supported from the bed-piece, by the peculiar-constructed standard M'.

A set-screw, *p*, is arranged in a cross-piece at the top of the standard M', whereby the pressure of the spring M can be regulated.

The drop G is prevented from being thrown too high by striking the top piece 7 of the frame F.

Parallel to the main shaft, and at the back part of the machine, is another shaft, N, supported by bearings, N', and which receives its motion by the action, on its gear, R, of the worm-gear, O, upon the end of a shaft which passes transversely between the shafts K and N, through the bearing O, on the bed-piece A, and which is driven, from the main shaft K, by a pair of mitre-gears, P, as fully indicated in the drawings.

Upon the shaft N is placed a friction-clutch, S, to the hub S' of which is keyed a pinion, T, which meshes into the rack E, fastened to the rear end of the anvil-block B, and by which the latter is moved back when the machine is in operation.

The pinion T and clutch S are kept in position, on the shaft N, by means of a collar, *s*, secured to the shaft N.

The inner or sliding portion of the friction-clutch is moved in and out by means of a forked slide, *q*, the fork of which runs in a groove in its hub, while the shank of the fork extends downward to the bed-piece A, where it is bent at a right angle, and passes under the guides *r r*, by which it is kept in place.

The shaft N is prevented from vibrating by set-screws *t*, placed in the heads of bearings N'.

The shipper-lever *u* is pivoted, at its end *u'*, to the bed-piece A, near the rear edge, and from thence extends to the front of the machine, where it is turned to form a handle, *u*.

This lever is connected to the forked slide of the friction-clutch, by means of a pin, *v*, which passes up through a slot in the shipper-lever.

Beneath the lever U is placed a spring, 10, (shown in fig. 1 by dotted lines,) sufficiently strong to throw the machine out of gear. At its rear end it is secured to the bed-piece A, and its front end rests against a pin in the under side of the shipper-lever U.

Passing through the side of the frame F, with its fulcrum, V', on the base thereof, is a catch-lever, V, extending from near the side of the anvil B to beyond the shipper-lever U, and in the end of this lever V, which is turned downward, forming a right angle, is a screw, *w*, that passes through the projection, and against the end of which, when the machine is thrown into gear, the projection *x*, on the side of the shipper-lever, rests.

To the side of the anvil-block is secured a dog, *w*, which strikes the end of the catch-lever V, as the anvil-block moves back, to throw the machine out of gear, and it is so arranged that it can be adjusted by the screw *y*, in the front of the anvil-block, whereby the movement of the latter can be regulated.

The dog *w*, in this instance, is slotted out in two places, and guide-screws, 8 8, pass through said slots into the anvil-block B, thereby retaining it in place as it is moved back and forth by the adjusting-screw *y*, which has a groove in its head to receive the forked ends, 9, of the dog *w*.

The dog *w* may be fitted in a dovetailed or other-formed groove, cut in the side of the anvil-block B, if preferred.

At the front of the frame F, and pivoted thereto at *z*, is an upright lever, X, the upper end of which passes between two pins, 1, in the back of the catch-bar I, sliding it back and forth with the movement of the shipper-lever, to which the lower end of the lever X is connected by the rod Y.

The lower end of lever X is slotted, to prevent binding of its connection with rod Y.

To the front edge of the bed-piece A, in front of the anvil-block B, is fastened a stop-piece, Z, against which the anvil-block strikes, and is prevented from coming too far forward.

An opening, *a'*, is cut in the edge of the bed-piece, in order that any chips or dirt, which may by accident get into the channel or groove *a*, can fall out.

The anvil B may be moved forward by a spring, Q, beneath the bed-piece A, one end being fastened to a pin, 2, fixed in the under side of the bed-piece A, and the other end fastened to a screw or pin, 3, fixed in the bottom of the anvil-block B, and passing through a slot in the bed-piece A; or the anvil may be moved forward by a weight, attached to a cord or chain passing over a pulley under the bed-piece, and which last arrangement may be preferred by some, where there is ample room.

The upright part of the bearing *o* may be made in two pieces, and secured together by bolts passing through slots in one or both of said pieces, whereby the worm-gear shaft can be adjusted up or down, as may be desired.

In lieu of making the guide-piece, at the bottom of the anvil-block, square, it may be made in dovetail-form, as well as the groove, and pieces placed at its sides, in the groove *a*, to be set up, by means of screws, to compensate for any wearing of the parts.

In lieu of making the slots for adjusting the rack E in the end of the anvil-block, they may be made in the rack.

The operation is as follows:

The sections are placed upon the face-plate of the anvil, against the gauge-piece *c*, which brings the edge to be serrated along the bevelled edge of the face-plate B', as indicated in figs. 1 and 2. The lever D is then pressed down, and latched under the piece *g*, on the front of the anvil, bringing the clamp-lever C down upon the section, which is thereby held securely in place. Power now being applied to the main shaft K, the operator presses the handle *u*, of the shipper-lever U, towards the anvil B, where it is held by the catch-lever V, the end of which is thrown back, by means of a spring, 4, far enough to allow the projection *x*, on the side of the shipper-lever U, to rest against the screw at the end of the catch-lever V, as indicated by dark lines, fig. 5.

By the above movement of the shipper-lever U, the friction-clutch is thrown into gear, and the catch-bar I is drawn back by lever X, which lets the drop G fall, thereby bringing the chisel H down with force into the section *d*.

During the operation of the machine, the drop G is raised by the tilt-wheel L, and thrown down by the spring M, with a rapid motion, while the anvil B is gradually carried back by the pinion T and rack E. After the anvil has moved back the length of the edge to be serrated of the section *d*, the dog *w* strikes the end of the catch-lever V, swinging it off from the projection *x* on the shipper-lever U, thus allowing the

latter to be thrown back by the spring 10, underneath it, which slides in the catch-bar I, catching and holding the drop G upraised, as shown in fig. 2. The friction-clutch is at the same time, by the operation of the lever U, thrown out of gear, thereby allowing the anvil-block to be moved forward by the spring Q, beneath the bed-piece A. Then, by raising the lever D, the clamp is loosened, and the section removed, the operation of serrating that side of the section being completed.

The machine herein described is a right-hand machine, and serrates only one edge of the sections. For serrating the other edge, a left-hand machine is used, the principle and construction of which are the same, but the arrangement is reversed.

The right-hand and left-hand machines may be built upon one bed-piece, and I so intend to build them, the main and rear shafts being prolonged to operate both. By such a construction and arrangement of the machines, one person can conveniently tend both machines.

To regulate the coarseness of the teeth, or serrations, cut on the sections, the pinion I' is changed, for finer teeth, a smaller pinion being used, and for coarser teeth, a larger pinion, thereby moving the anvil back faster or slower, as the case may be.

Having described my machine for serrating sickle-sections,

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

1. The improved machine herein described, for serrating sickle-sections, the constituent parts of which are constructed and arranged, in relation to each other, substantially as set forth.

2. Unshipping the clutch and arresting the drop, simultaneously, by the mechanism and in the manner shown and described.

3. Reciprocating the anvil-block B, by means of the rack E, pinion T, friction-clutch S, and spring g, all arranged and operating as set forth.

4. The construction and arrangement of anvil-block B, anvil B', bolster b, and gauge c, in the manner specified.

5. The arrangement of the reciprocating dog w, lever V, spring-lever u, connecting-rod y, lever X, and clutch-bar I, as and for the purpose specified.

6. The arrangement of the reciprocating dog w, notched spring-lever u, forked slide q, and clutch S, as and for the purpose specified.

7. The arrangement of the latch g on the anvil-block, the lever D, eccentric-shaft C', and clamping-lever C, in the manner described.

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Witnesses:

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EPH'M WHITMAN.