

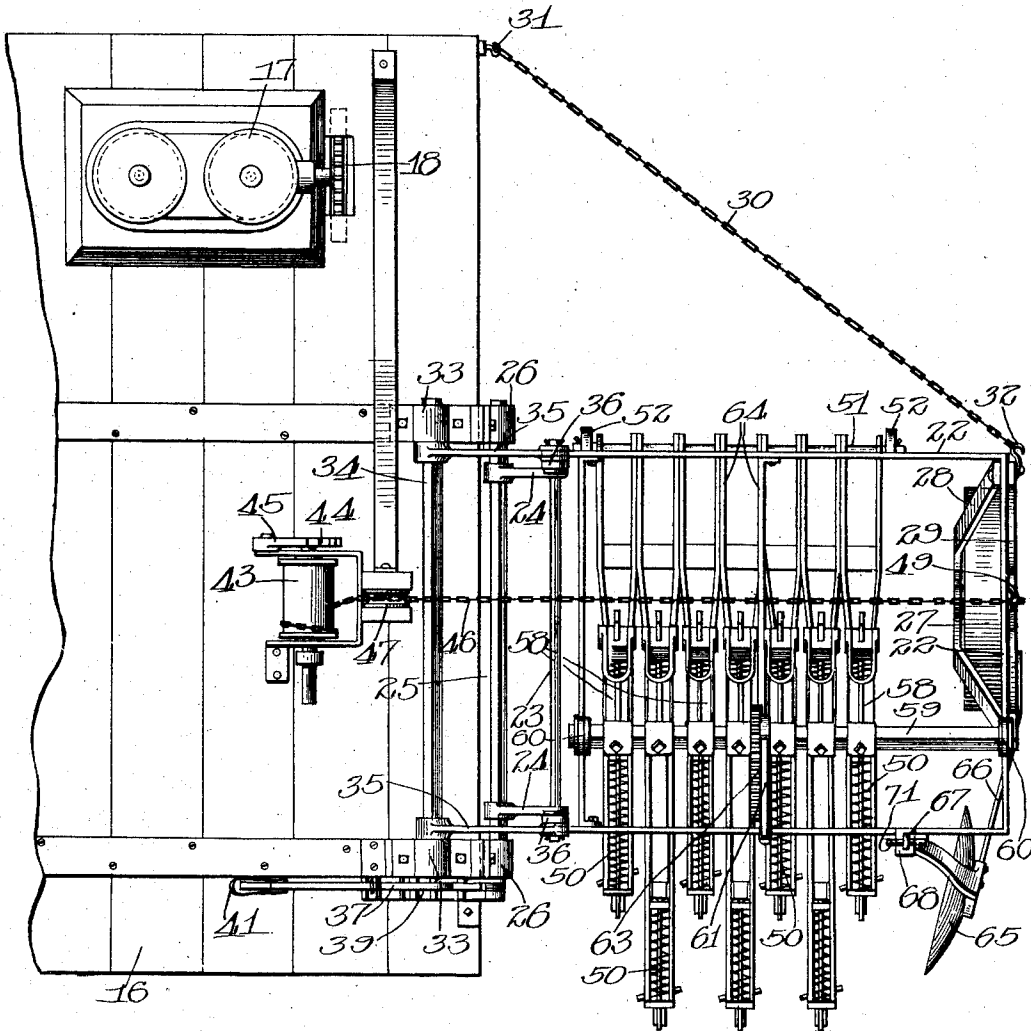
E. LAAS & R. WHITTY.
RAILWAY WEED CUTTER.
APPLICATION FILED DEC. 18, 1909.

974,452.

Patented Nov. 1, 1910.

3 SHEETS-SHEET 1.

Fig. 1.



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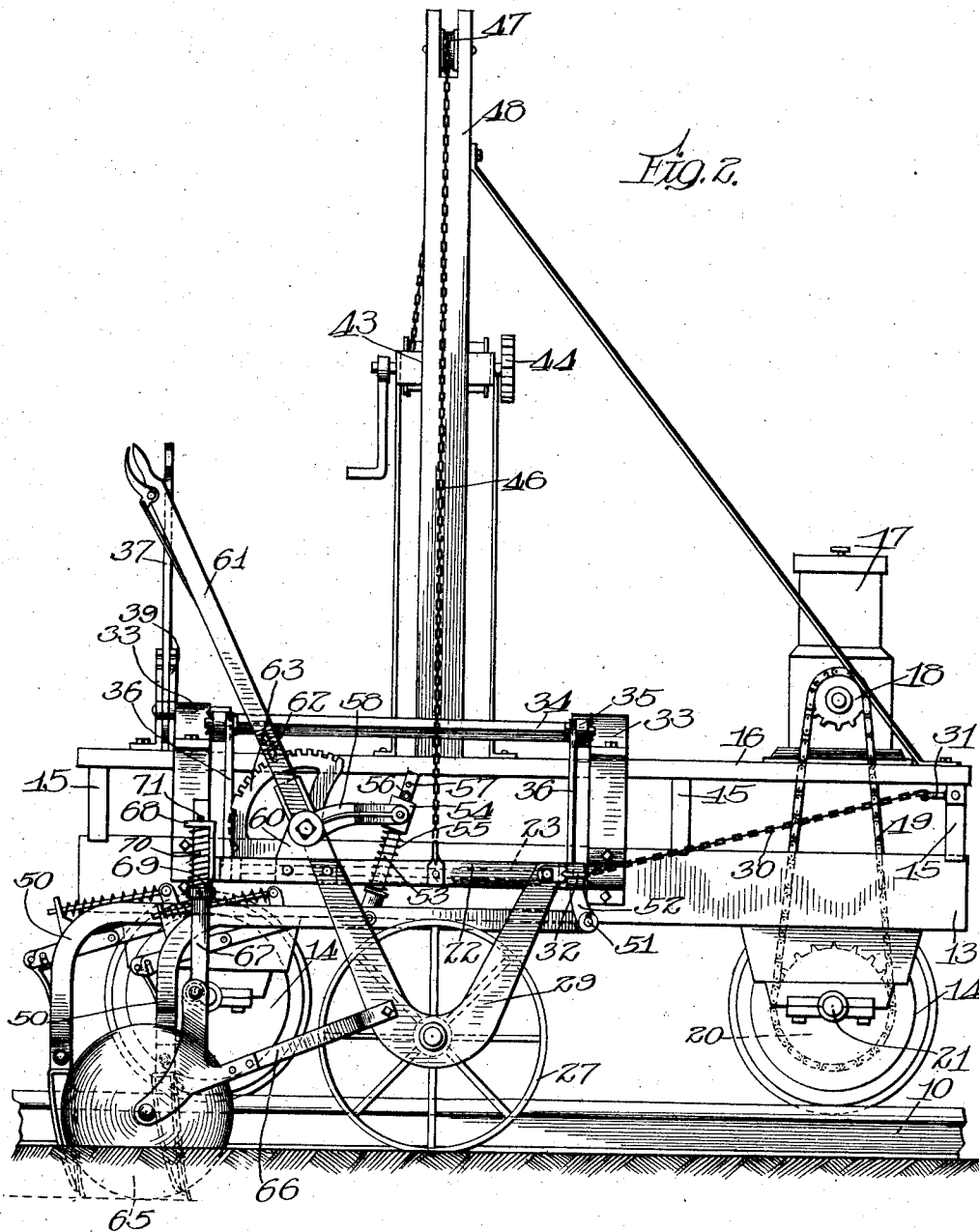
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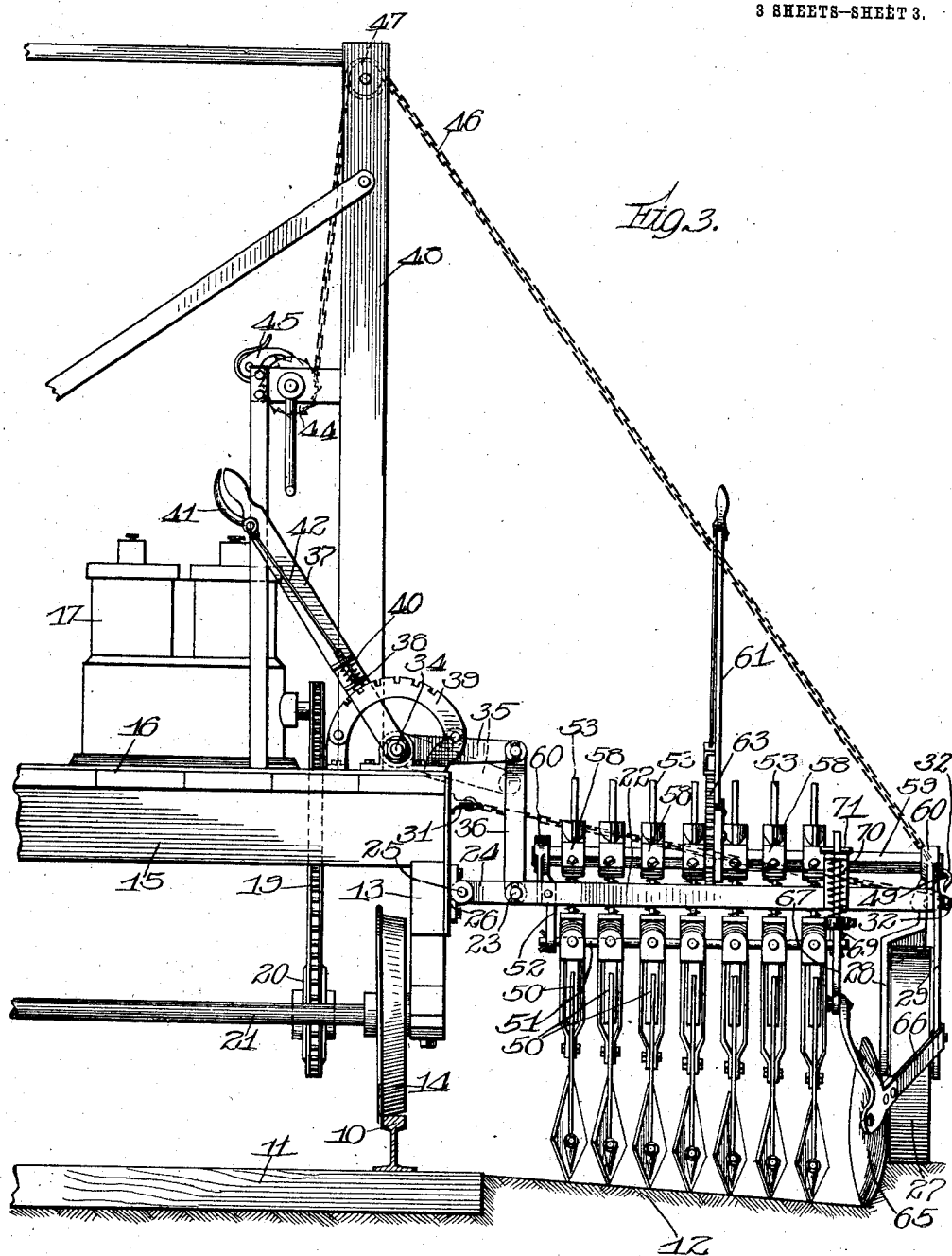
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

ROBERT WHITTY, OF HORICON, WISCONSIN, AND EDWARD LAAS, OF CHICAGO, ILLINOIS.

RAILWAY WEED-CUTTER.

974,452.

Specification of Letters Patent.

Patented Nov. 1, 1910.

Application filed December 18, 1909. Serial No. 533,797.

To all whom it may concern:

Be it known that we, ROBERT WHITTY, residing at Horicon, in the county of Dodge and State of Wisconsin, and EDWARD LAAS, residing at Chicago, in the county of Cook and State of Illinois, citizens of the United States, have invented certain new and useful Improvements in Railway Weed-Cutters, of which the following is a specification.

Our invention relates to a railway weed cutter comprising cutting apparatus which is supported from the side of a railway car and rests upon and is carried, by movement of the car upon the track, over and along the shoulder of the roadbed in such manner as to destroy the vegetation upon the same.

A weed cutter of this general sort is shown and described in our application for Patent, Serial No. 467,686, filed December 15, 1908.

One of the principal objects of the present invention is to provide novel means for making a pivotal connection between the cutting apparatus and the car which will permit the inner end of the frame carrying the cutting devices to be raised and lowered as occasion demands.

One of the chief difficulties which has stood in the way of obtaining a practically successful weed destroying machine for railroad work has arisen from the fact that the surfaces which have to be operated upon are of very different character. The cutting apparatus works upon the shoulder of the roadbed, which generally speaking, is sloping and usually somewhat curved. But the inclination of this shoulder, and also its contour, are far from uniform. The shoulder is almost certain to change in one or both of these respects at different points along the roadbed. In order, therefore, that a weed cutter should do satisfactory work it must be capable of a ready adjustment to accommodate for the inequalities of the ground on which it operates. That is, the cutting devices must be so arranged that they can be quickly and easily adjusted in order that they may be always kept in contact with the ground across the whole breadth of the strip worked upon.

The apparatus described in our application above referred to was successful in this respect to a large degree. However, it was found that the rigid connection between the frame supporting the cutting devices

and the car resulted in some cases in forcing the inner cutters too deeply into the ground and in other cases lifting them above an effective cutting position. This defect could only be cured by stopping the car and making a readjustment of the cutting apparatus with respect to the car. It is not practical to do this as the variation in the contour of the shoulder is continual.

Our present invention improves upon the apparatus of the application referred to by providing means, which can be operated by a suitable controlling lever, or the like, upon the car, for shifting the inner end of the cutting apparatus relative to the car so as to give the apparatus a greater degree of flexibility and hence, of effectiveness.

The invention has for other objects certain other new and improved constructions, arrangements and devices in connection with railway weed cutters which will be hereinafter described and particularly set forth in the claims appended hereto.

The invention in a preferred embodiment is illustrated in the accompanying drawings, wherein—

Figure 1 is a plan view of a portion of a car with the weed cutting apparatus of our invention connected therewith. Fig. 2 is a side elevation of the same, and Fig. 3 is a rear elevation.

Like characters of reference indicate like parts in the several figures of the drawings.

Referring to the drawings, 10 represents one of the rails of a railroad, 11 a cross tie supporting the same and 12 the slope or shoulder at the side of the track upon which our weed cutting apparatus is designed to operate. The cutting apparatus is supported from a car of any preferred construction.

In the drawings, 13 represents the under frame of the car, which is supported on the wheels 14 and which carries a number of cross timbers 15 on which the flooring 16 of the car is laid. The car may be propelled in any desired manner.

We have indicated by the numeral 17 a motor having on its driven shaft a sprocket wheel 18, connected by a drive chain 19 with a sprocket wheel 20 on one of the axles 21.

The cutting devices are mounted on a three-sided frame 22, the ends of which are connected together by a rod 23 which ex-

tends through the rock arms 24 secured to a shaft 25, mounted to turn in bearings 26 secured to the side of the car. The outer end of the frame is supported on a broad-tired wheel 27 which is designed to travel along on the sod or ground beyond the shoulder and which is mounted in the hangers 28 and 29 depending from frame 22. The frame may be guyed by the chain 30 extending from the hook 31 on the forward end of the car to the hook 32 at the corner of the frame.

The inner end of the frame is raised and lowered by the following means: Mounted in bearings 33 on the car is a rock shaft 34, the center portion of which is square in cross section and carries the rock arms 35, to the ends of which are pivoted the links 36, the latter being pivotally connected with the arms 24 on the shaft 25. To one end of the rock shaft 34 is rigidly secured a lever 37 provided with a tooth 38 adapted to cooperate with the notches of the sector 39; the tooth being moved from its engaging position with the sector against the tension of its spring 40 by means of the pivoted grip 41 and connecting rod 42. When the lever 37 is moved outwardly the inner end of the cutting apparatus is lowered. With a reverse movement of the lever the inner end of the cutting apparatus is raised.

It will be seen that the frame 22 is pivotally connected with the car. This is so as to permit the cutting apparatus to be raised so as to avoid obstacles. Any desired form of apparatus may be employed for thus raising the cutting apparatus. We have shown a winch 43, having the usual ratchet 44 and pawl 45 and a chain 46 which extends over a pulley 47 on a frame 48 and connects with a hook 49 at the outer edge of the frame 22. The cutting apparatus shown consists of a number of cutting devices 50 which are of two different lengths arranged alternately, as shown. These devices are of the same construction as shown in our application above referred to, and, therefore, will not be here described in detail. Suffice it to say that they are pivotally mounted at their forward ends upon a shaft 51, supported in brackets 52, depending from the frame 22 and are provided each with a pivoted rod 53, carrying a sleeve 54 which bears against a coiled spring 55, the sleeve being held at different adjustments on the rod 53 by a cotter 56 extending through one or other of a series of perforations 57 in the rod. Pivoted to the sleeve 54 is an arm 58 rigidly connected to a rock shaft 59 which turns in bearings 60 on the frame 22. The rock shaft 59 is provided with an operating lever 61, provided with the tooth 62 which engages in the notches of a sector 63, secured to the central one of the two struts

64 which brace the frame 22; the tooth being moved in and out of engagement with the sector in the familiar manner. The adjustment of the sleeve 54 on the rod 53 provides for an individual adjustment of any particular cutter with respect to the other cutters. By rotating rock shaft 59 by means of the operating handle 61, all of the cutters, regardless of their individual adjustments, may be raised and lowered when the occasion demands.

We prefer to equip the weed cutter with means for cutting a straight and even grass line along the outer edge of the shoulder. A preferred form of device for accomplishing this result is shown in the drawings.

65 is a disk cutter mounted so as to rotate on a bracket, one arm of which 66 is pivotally attached to the hanger 29 and the other arm of which has the pivoted extension 67 which passes through a slot in a lug 68 on the frame 22. On the extension 67 is an adjustable collar 69 and between this collar and the lug 68 is a compression spring 70. A pin 71 in the extension above the lug provides a stop.

The operation of the weed cutter, as above described, is as follows: The weed cutter may be propelled or pushed along the track to the place where it is to be put in operation with the weed cutting apparatus raised so that it will pass over cattle guards, switch stands or other structures or obstructions along the side of the track. The cutting apparatus is then lowered until the cutters rest upon the ground. If need be, the individual cutting devices may be adjusted by a proper positioning of the collars 54 on the rods 55 so that these devices as a whole conform to the slope and contour of the shoulder. The car is then propelled, drawn or pushed along the track and the lever 61, which controls the vertical position of the entire set of cutting devices, is thrown back so as to cause the cutters to dig into the ground to the proper depth to uproot and destroy the vegetation on the shoulder. The wheel 27 supports the outer end of the frame carrying the cutting devices and travels along upon the dirt or sod outside of the shoulder proper. The disk 65 cuts a clear and defined sod line along the edge of the shoulder. This device is so constructed as to be capable of some adjustment by means of the position of the collar 69. The disk is elastically supported so that when it meets with a stone or other hard substance that might destroy or injure it, if it were rigidly sustained on the frame, it will ride over such obstruction.

As is stated above, the contour and slope of the shoulder of a railroad bed is liable to constant variation. Such variation might be taken care of by a readjustment of the

individual cutting devices but this would consume altogether too much time. In general, a sufficient conformity of the cutting apparatus to the roadbed may be brought about by the vertical shifting of the inner or pivoted end of the cutter frame as provided for by the link and rock arm mechanism described above. If, for example, the inclination of the shoulder should become less than that shown in Fig. 3, by releasing the controlling lever 37 and setting it farther forward on the sector 39, the general inclination of the cutters will be changed in conformity to the new contour operated upon. Therefore, the cutting apparatus is connected to and supported from the car at a point which can be shifted quickly and easily at the will of the operator, and without stopping the car. In any position, the cutting apparatus, as a whole, may be raised so as to avoid obstacles, and in any position the depth of the cut may be regulated by means of the lever 61.

It will be seen that when the inner end of the cutting apparatus is raised or lowered by means of the lever 37 and its associated devices, the cutting apparatus is given a slight shift inwardly or outwardly, as the case may be. This is a desirable, though perhaps not an essential feature of our improved apparatus. If the vegetation along the roadbed is very thickly grown, it is possible that some of it may escape the cutters at a first operation of the machine. In such case, the cutting apparatus may be given a new adjustment which will shift the cutters laterally and the machine then run back over the same stretch of track so as to destroy the last vestiges of vegetation.

For work on a single track it will be obvious that the car may be provided at each side with weed cutting apparatus of the character shown.

As numerous modifications of our invention will readily suggest themselves to those familiar with this class of machinery, we do not limit ourselves to all the particular forms, constructions and arrangements shown and described.

We claim:

1. In a railway weed cutter, the combination with a railway car, of a frame pivotally connected with the car, means for shifting said pivotal connection, means for supporting the outer end of said frame, a plurality of weed cutting devices on said frame, and a grass line cutter which is elastically mounted on said frame.

2. In a railway weed cutter, the combination with a railway car, of a frame, a plurality of weed cutting devices on said frame, and a grass line cutter connected with said frame comprising a disk, a bracket supporting the same having a pivoted extension and

a compression spring interposed between said extension and said frame, for the purpose described.

3. In a railway weed cutter, the combination with a railway car, of weed cutting apparatus, and means for adjustably connecting said weed cutting apparatus with the car, comprising a rock shaft, means for rotating the same, rotatable supporting arms on the car to which said weed cutting apparatus is pivoted, arms on said rock shaft and links connecting said arms with the arms to which said apparatus is pivoted.

4. In a railway weed cutter, the combination with a railway car, of weed cutting apparatus, means pivoted to the car and to said weed cutting apparatus, and means on the car whereby said last mentioned pivotal connection may be raised and lowered.

5. In a railway weed cutter, the combination with a railway car, of weed cutting apparatus, means pivoted to the car and to said apparatus, a rock shaft on the car having a lever, means for locking the lever at different positions, and means connected with said rock shaft for raising and lowering the pivotal connection between said means pivoted to the car and said weed cutting apparatus.

6. In a railway weed cutter, the combination with a railway car, of a frame, means for supporting the outer end of the frame, means pivoted to the car and to the inner end of the frame, means on the car whereby the pivotal connection between the means pivoted to the car and the frame may be raised and lowered, and a plurality of cutting devices on said frame.

7. In a railway weed cutter, the combination with a railway car, of a frame, means for supporting the outer end of the frame, means pivoted to the car and to the inner end of the frame, means on the car whereby the pivotal connection between the means pivoted to the car and the frame may be raised and lowered, and a plurality of cutting devices on said frame, which devices are elastically mounted on the frame and capable of separate vertical adjustments.

8. In a railway weed cutter, the combination with a railway car, of a frame, means for supporting the outer end of the frame, means pivoted to the car and to the inner end of the frame, means on the car whereby the pivotal connection between the means pivoted to the car and the frame may be raised and lowered, a plurality of cutting devices on said frame, which devices are elastically mounted on the frame and capable of separate vertical adjustments, and means for raising and lowering said frame as a whole.

9. In a railway weed cutter, the combination with a railway car, of weed cutting ap-

paratus, means pivoted to the car and to said weed cutting apparatus, means on the car whereby said last mentioned pivotal connection may be raised and lowered, and
5 means for raising said weed cutting apparatus out of contact with the ground.

10. In a railway weed cutter, the combination with a railway car, of a frame pivotally connected with the car, means for supporting the outer end of said frame, a plurality
10 of weed cutting devices on said frame, and

a grass line cutter which is elastically mounted on said frame.

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Witnesses to signature of Robert Whitty:

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CHAS. HAWKS.

Witnesses to signature of Edward Laas:

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E. L. BREIDERT.