

(No Model.)

B. L. ELLIOTT.  
DISK SHARPENER.

No. 555,936.

Patented Mar. 10, 1896.

Fig. 3.

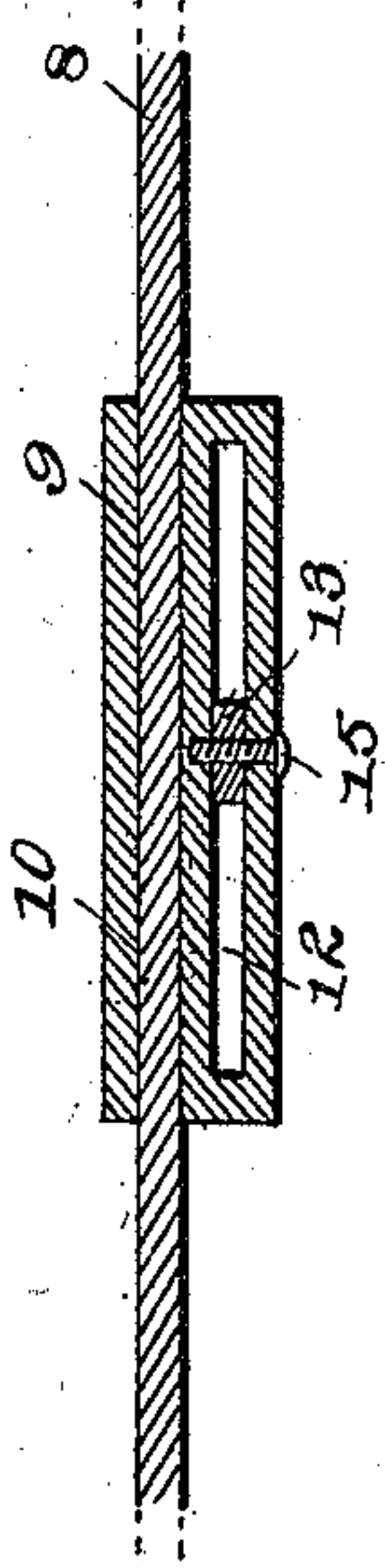


Fig. 1.

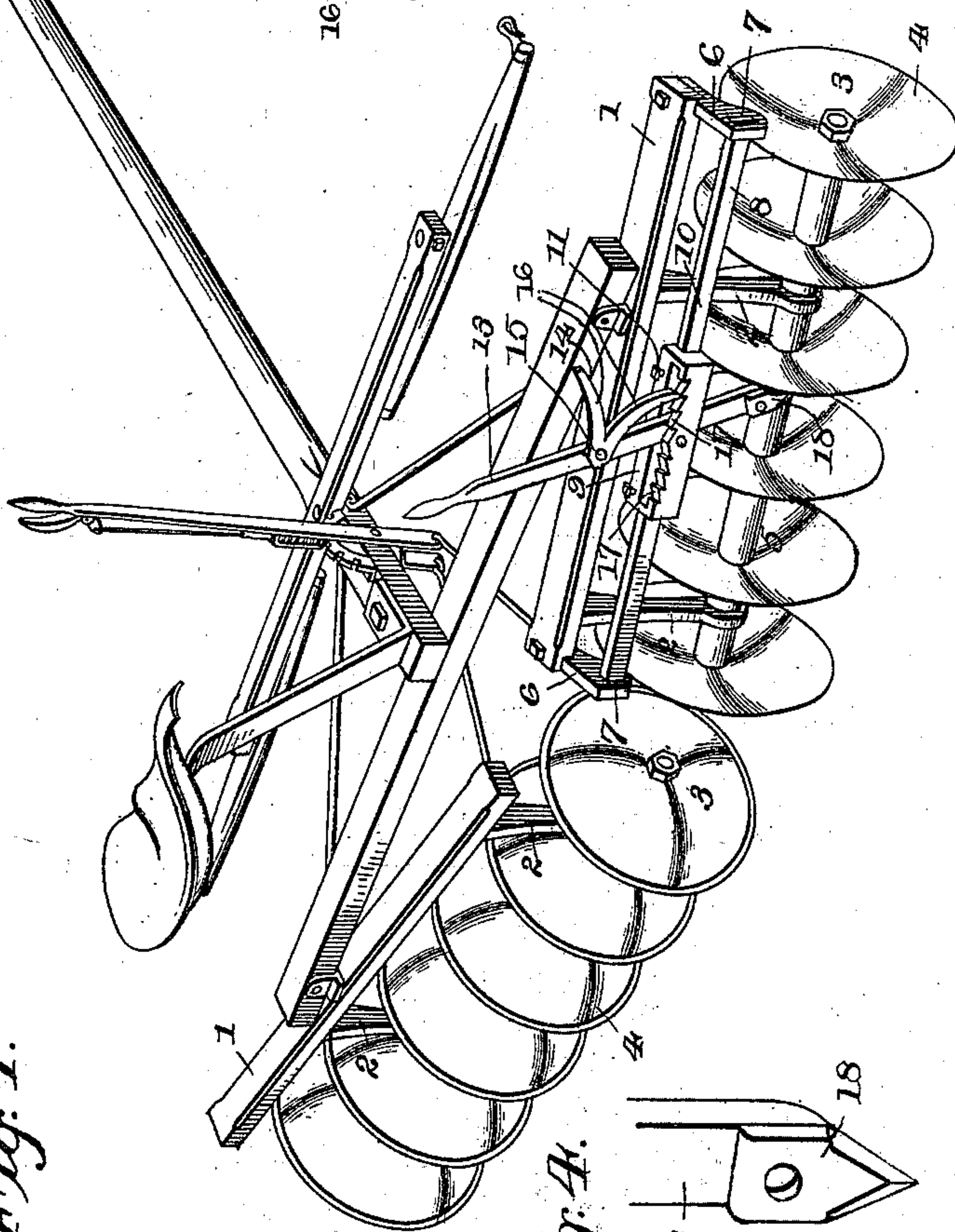
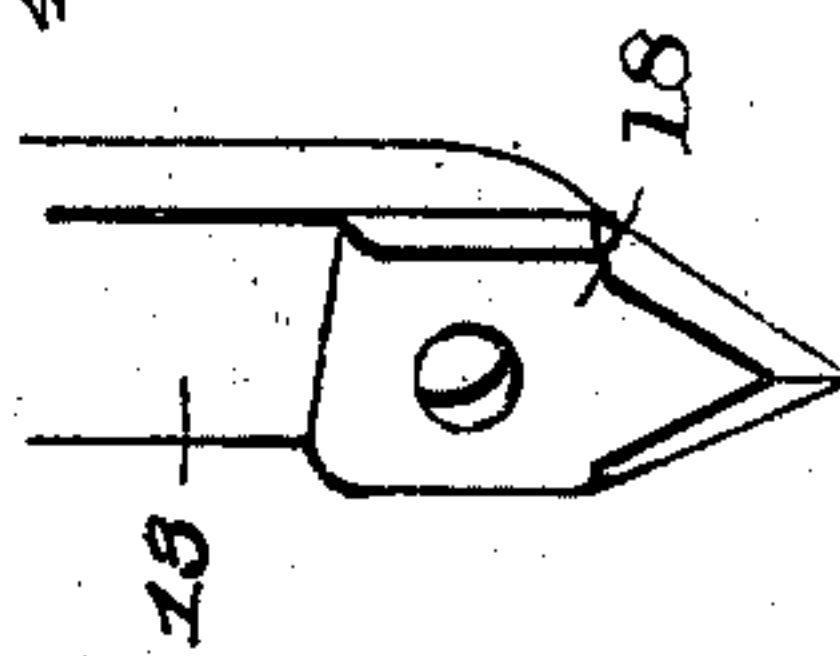


Fig. 4.



Witnesses

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# UNITED STATES PATENT OFFICE.

BENJAMIN L. ELLIOTT, OF TRIPLETT, MISSOURI.

## DISK-SHARPENER.

SPECIFICATION forming part of Letters Patent No. 555,936, dated March 10, 1896.

Application filed September 15, 1894. Serial No. 523,152. (No model.)

*To all whom it may concern:*

Be it known that I, BENJAMIN L. ELLIOTT, a citizen of the United States, residing at Triplett, in the county of Chariton and State of Missouri, have invented a new and useful Disk-Sharpener, of which the following is a specification.

This invention relates to an improved device for sharpening the disks of harrows and cultivators; and it has for its principal object the production of a device which is capable of being applied to a harrow or cultivator without necessitating dismantling the same, and one which, having a stationary knife bearing against the disks, may be made to operate during the operation of the harrow or cultivator. These ends I attain by the mechanism illustrated in the accompanying drawings, wherein—

Figure 1 represents a perspective view of my improvements, showing them applied to a harrow and in operative relation thereto; Fig. 2, a section taken vertically through the knife-bar and extending through the entire machine; Fig. 3, a detail section taken horizontally through the carriage for the knife-bar and showing the method of mounting the same; Fig. 4, a detail perspective of the sharpening-knife.

The reference-numeral 1 indicates the platform or body portion of a disk harrow, which is provided on its under side with downwardly-projecting arms 2, the lower ends of which are provided with shafts 3, upon which the disks 4 are revolvably mounted, spacing-sleeves 5 being provided, whereby the disks are held in the proper relative positions. All of this is of the usual and well-known construction and does not enter into my invention.

Removably secured to the under side of one section of the platform 1, and at each end thereof, are the rearwardly-projecting arms 6, which are formed with a reduced or cut-away portion at their front ends adapted to receive the under side of the platform, and which are held in place by screws or bolts removably connected to the platform. The rear ends of the arms 6 are formed with vertically-elongated slots 7 therein, in which the beam 8 is arranged and secured so as to be rigid therein.

The beam 8 extends parallel with the rear edge of the platform 1, and from one end thereof to the other, and is provided to support the knife-carrying carriage, as will be now described.

The knife-bar-carrying carriage consists of a rectangular block 9, formed of wood or metal, preferably the latter, and with a longitudinal passage 10 therein, through which passage the beam 8 passes, so that the carriage will be slidably mounted thereon. Operating in the upper side of the carriage are the vertically-disposed set-screws 11, which are two in number and which are adapted to bind against the beam 8 and thereby lock the block in place. By these means the block may be held at any position throughout the length of the beam 8.

Formed in the block 9, and extending longitudinally from one end thereof to the other, is the slot 12, which communicates with the upper and lower sides of the block and which is disposed rearwardly of the passage 10. Within this slot 12 the knife-carrying bar 13 is mounted and adapted to swing therein and upon the screw-pin 15, which is passed through the block and through a corresponding opening in the bar 13. By these means the bar may be adjusted at any inclination. This adjustment of the bar 13 is retained by means of the pawl 14, which is secured thereto by means of the screw 15. The pawl 14 is of a duplex character, it being provided with the forked or diverging arms 16, each adapted to act as a pawl and to render the pawl 14 reversible. The pawl 14 co-operates with the ratchet-teeth 17, formed in the upper rear edge of the block 9 and disposed in two directions, the teeth on each side of the pin 14 being slanted toward each other. Thus it will be seen that one of the arms 16 operates with the teeth on one side of the pin 14, and this when the upper end of the bar 13 is swung so as to lie over the teeth on the opposite side, and that the remaining arm of the pawl 14 operates with the remaining teeth when the position of the bar 13 is reversed. The pawl 14 is made to operate with the respective sets of teeth 17 by swinging it upon the screw 15. The lower end of the bar 13 is provided with a knife 18, secured thereto by bolting and formed with a double edge, each part of which



slopes toward its companion, so as to form a V-shaped point.

In the operation of my invention, supposing that it is desired to sharpen the disk shown to the right in Fig. 1, the carriage or block 9 should be moved along the beam 8 until the bar 13 is in position to throw its knife 18 into engagement with the beveled edge of the disk. The carriage should now be made secure by means of the set-screws 11, and the bar 13 swung so as to cause its knife 19 to engage with the disk aforesaid, whereupon the bar should be secured by the operation of the pawl 14 with the ratchet-teeth 17. The machine should now be drawn along as usual in the performance of its function of breaking up the ground, whereupon the disk will be made to revolve against the knife and thereby effect the sharpening of the former. When this operation has been completed, the bar 13 should be swung in the opposite direction, so that the knife will engage with the adjacent disk, after which the bar should be secured and the operation continued. So the machine operates, simultaneously cultivating the ground and sharpening its disks, and this may be continued until the disks have been completely sharpened. When all the disks of one section have been sharpened and it is desired to sharpen the remaining disks of the harrow, this may be effected by removing the arms 6 from the platform, to which they are shown as being attached, and attaching them to the platform of the remaining section in the manner shown in the drawings in connection with the first section. When the device is not being used, it may be left on the machine or taken off, at the will of the attendant.

It will be understood that my invention while here shown as applied to a disk harrow is applicable and adapted to be applied to disk cultivators, as explained hereinbefore. No illustration of this point is thought to be necessary, since the two machines are nearly duplicates in construction and the change would be obvious.

The knife-point is beveled, as shown, and shaped as the letter V, so that it will be capable of cutting on both edges. It is the only part of the machine liable to fracture and can be replaced at a trifling cost.

Various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention.

Having described the invention, I claim—

1. In a disk-sharpener, the combination with the frame of a harrow or cultivator, of a beam extending parallel with the edge thereof, a carriage movable on the beam and provided with two sets of ratchet-teeth, each disposed toward the other, a knife-bar pivotally mounted on the carriage, and a pawl pivoted to the knife-bar, said pawl being formed with two diverging or forked arms respectively adapted to engage with the oppositely-arranged ratchet-teeth of the carriage, substantially as described.

2. The combination with the frame of a disk harrow or cultivator, of a carriage mounted thereon and capable of adjustment transversely in a line parallel with the axle of the disks, the carriage having a series of ratchet-teeth thereon, a knife pivotally mounted on the carriage and capable of engaging with the disks and of sharpening the same while the harrow or cultivator is in operation, and a pawl mounted on the knife and operating with the ratchet-teeth on the carriage, whereby the knife may be held at the desired adjustment, substantially as described.

3. The combination with the frame of a disk harrow or cultivator, comprising a track extending in parallelism to and independent of the axle upon which the disks are mounted, a carriage slidably mounted upon said track, a sharpening device pivotally connected with said carriage so as to be capable of engaging with either side of a disk and with any one of the gang of disks for the purpose of sharpening the same while the harrow or cultivator is in operation, and means for holding said sharpening device in engagement with a disk, substantially as and for the purpose specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

BENJAMIN L. ELLIOTT.

Witnesses:

T. W. SANDEN,

A. C. FLEETWOOD.