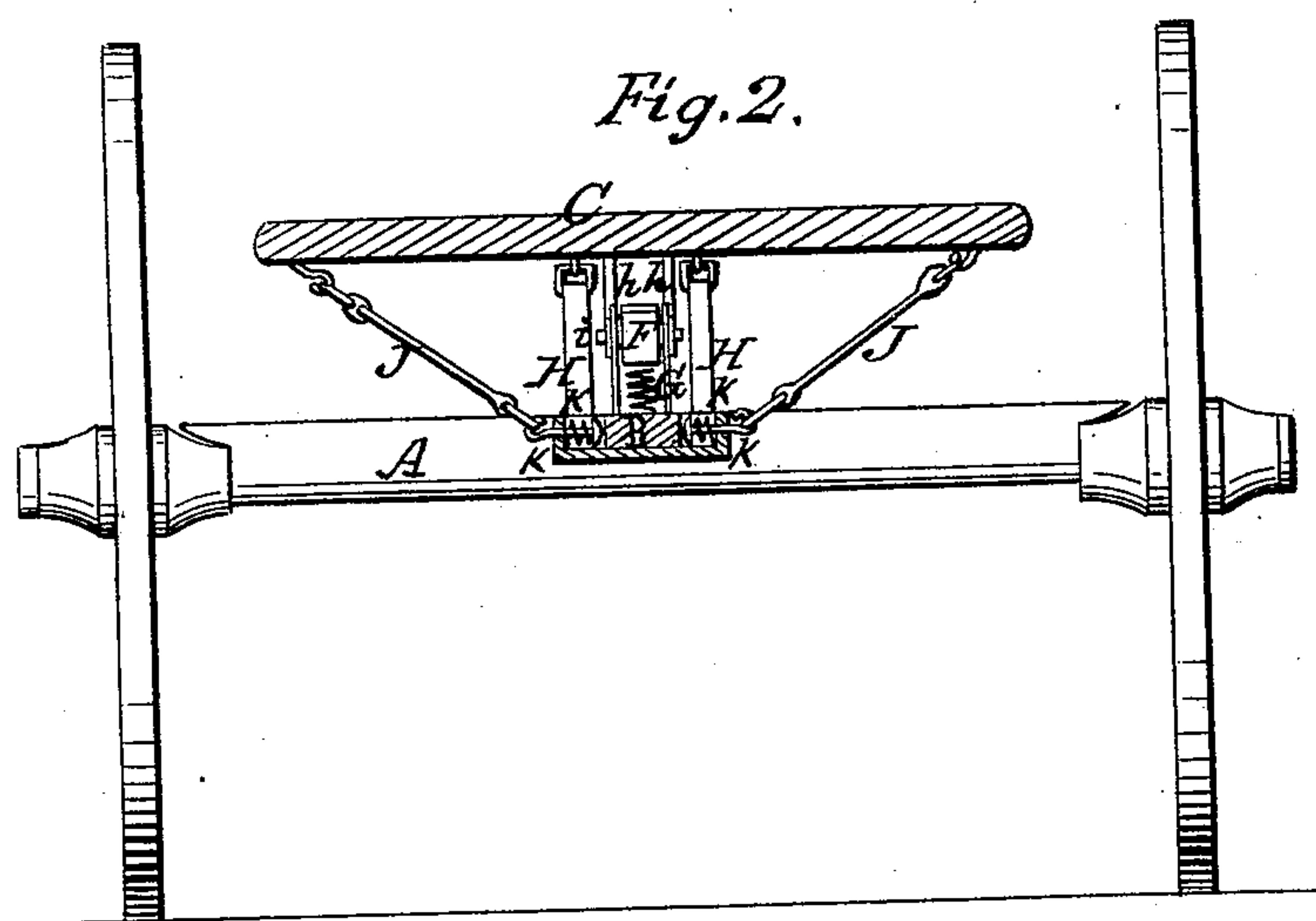
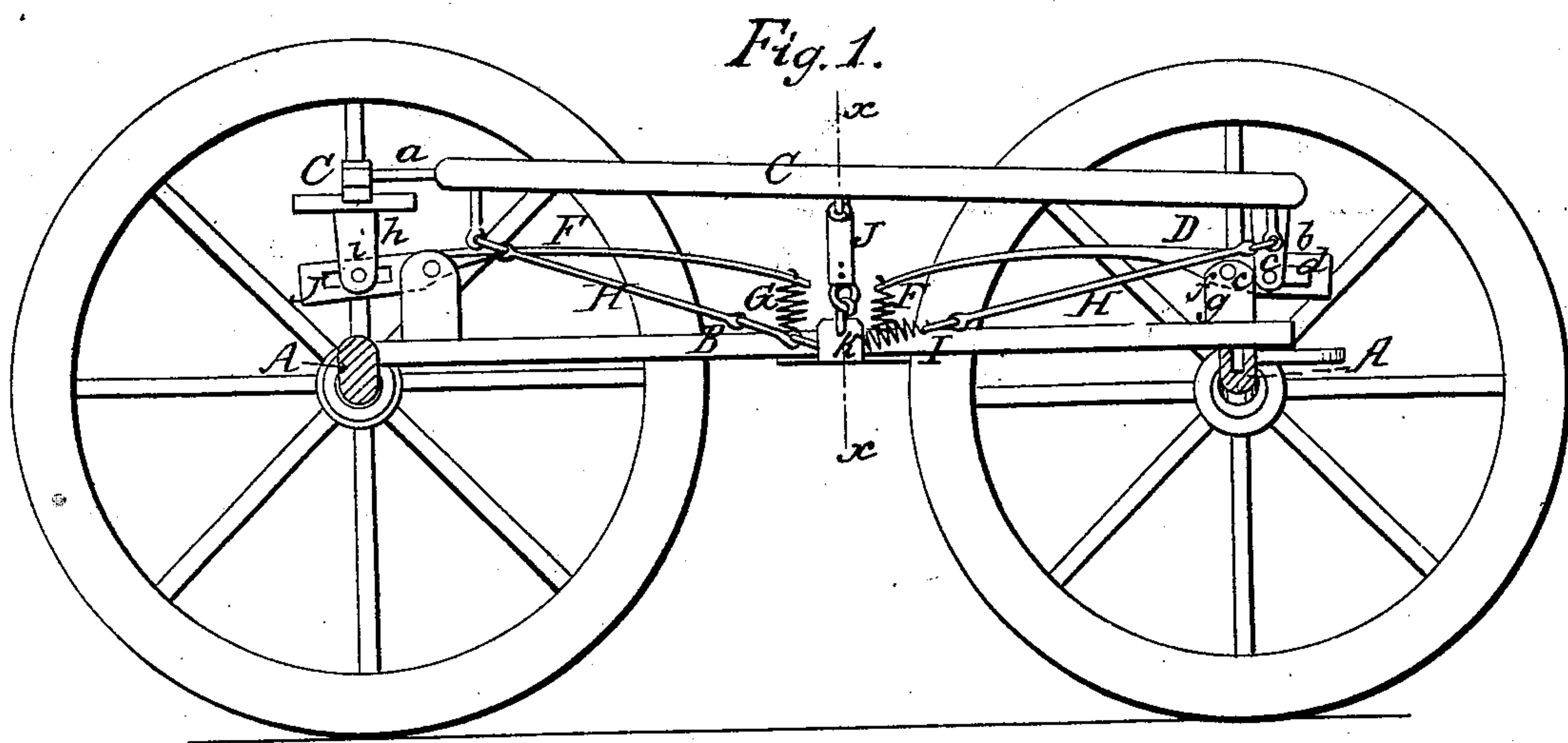


E. D. WILLIAMS.

Carriage-Spring.

No. 12,979.

Patented May 29, 1855



UNITED STATES PATENT OFFICE.

E. D. WILLIAMS, OF WILMINGTON, DELAWARE.

VEHICLE.

Specification of Letters Patent No. 12,979, dated May 29, 1855.

To all whom it may concern:

Be it known that I, E. D. WILLIAMS, of Wilmington, in the county of Newcastle and State of Delaware, have invented a new and useful Improvement in Spring-Vehicles; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification, in which—

Figure 1, is a side view of my improvement, the wheels of the vehicle nearest the eye being removed. Fig. 2, is a transverse vertical section of ditto, (x) (x) Fig. 1, showing the plane of section.

Similar letters of reference indicate corresponding parts in the two figures.

The nature of my invention consists in the peculiar construction of the springs, their arrangement and the manner in which they are applied to the vehicle.

A, A, represents the front and back axles of a vehicle, and B, is a perch which connects the two axles as usual.

C, represents the bottom or floor of the body of the vehicle. The back end of the floor C, is connected to a bolster C', by rods (a) (a) as shown in Fig. 1. The front end of the floor C, has two small projections (b) (b) attached to its under surface, the lower ends of which are connected by a rod (c) which works, or is fitted in a slot (d) at the end of a plate spring D. The slot (d) is formed in the thick end of the spring which is also the short end, the fulcrum being at (e) on a rod (f) between two plates (g) (g) which are attached to the perch B. The long end of the spring is the elastic part, or the spring proper, and its end is attached to a spiral spring E, the lower end of which is connected to the perch B near its center. The bolster C', is attached to a spring F, precisely similar to the spring D, the under surface of the bolster having projections (h) (h) the lower ends of which are connected by a rod (i) which works in a slot (j) in the thick and short end of the spring F. The end of the long part of the spring F, is also attached to a spiral spring G, the lower end of which is connected to the perch B, near its center. To the front end of the floor C, and also to

its back end there are attached two straps H, H. The inner ends of the front straps are connected to spiral springs I, I, said springs being attached to projections (k) at the sides of the perch B. The back straps H, are attached directly to the projections (k) no springs being shown, but they may be applied if desired.

J, J, are straps which are connected to the sides of the floor, C. The inner ends of these straps are connected to springs K, K, which are also attached to the projections (k), see Fig. 2.

The operation will be readily seen. The weight of the load of the vehicle will bear of course upon the thick and short ends of the springs D, F, and as the long parts of the springs, that is the elastic parts, will vibrate, or move through considerable space compared with the short parts, consequently light elastic springs may be used. The springs are prevented from breaking, as they cannot yield or give vertically beyond a certain distance as they come in contact with the under surface of the floor C, and the strain is then brought longitudinally upon the springs. The straps H, prevent any sudden longitudinal vibrations of the floor C, and body, the springs I, of the front straps H, will yield, or give, to prevent "jerks" in quick or sudden stoppages. The side straps J, also prevent sudden lateral vibrations, in consequence of the springs K, K.

The above invention is extremely simple, and economical to apply to vehicles of all kinds. Great elasticity and a substantial spring is obtained.

What I claim as new and desire to secure by Letters Patent, is,

The combination of the plate springs D, F, and the spiral springs E, G, connected or attached to the floor C, of the body of the vehicle, and the perch B, as herein shown, and using in connection with said springs the straps H, J, for the purpose of preventing sudden longitudinal and lateral vibrations as herein shown and described.

E. D. WILLIAMS.

Witnesses:

P. COUNTIP,
JACOB JEFFERIS.