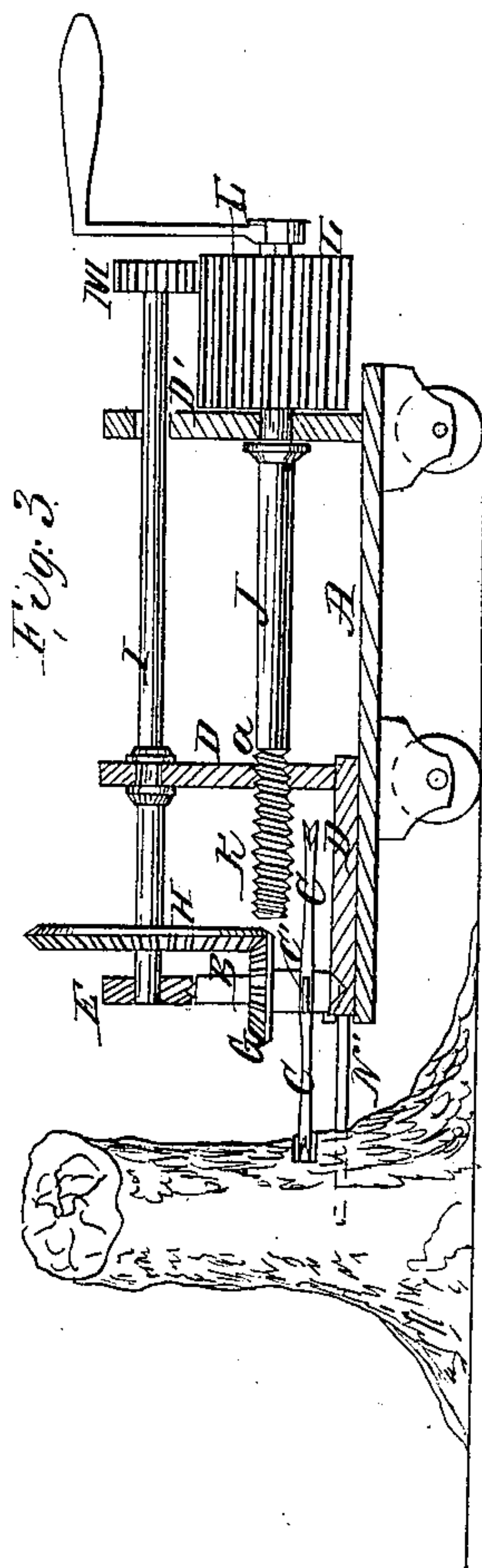
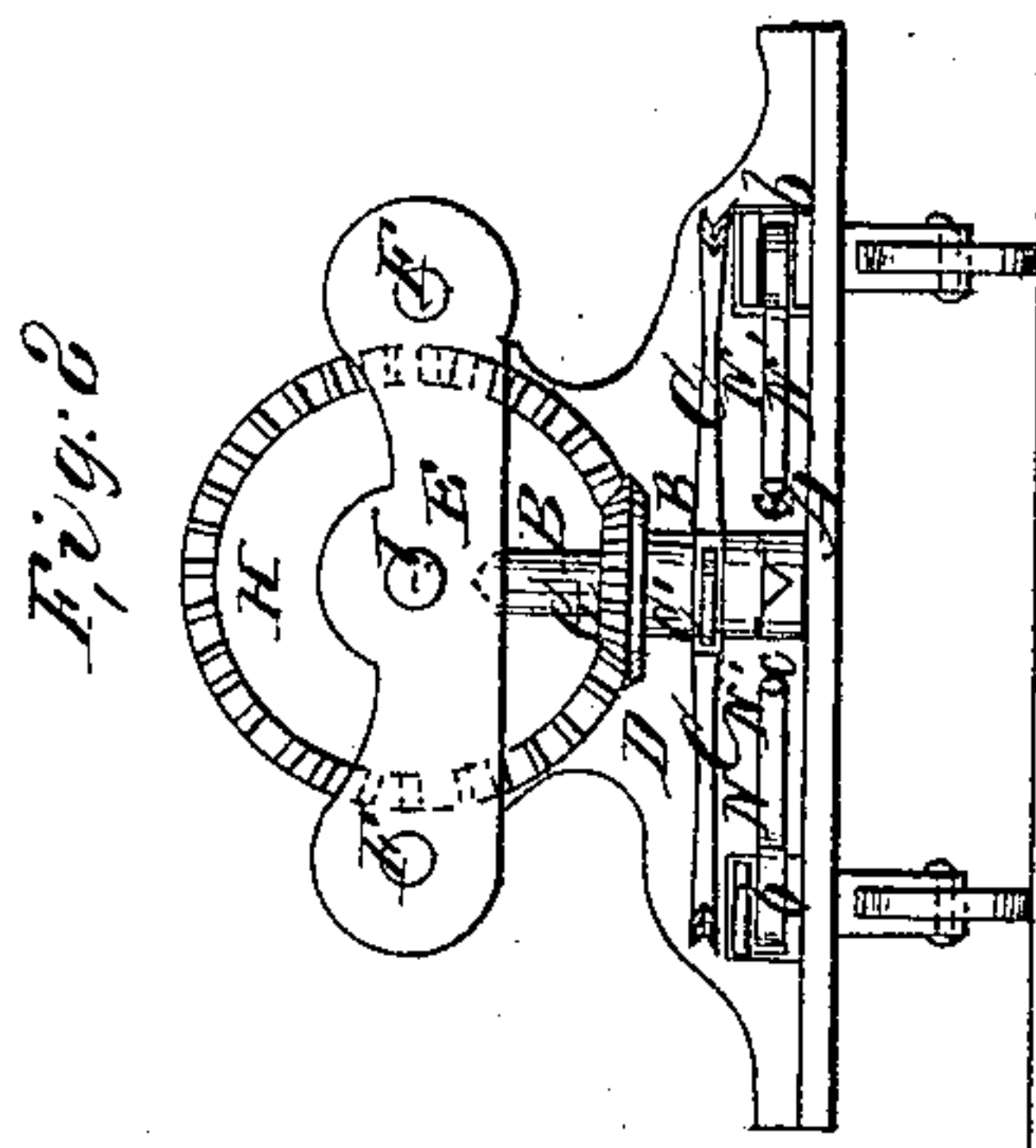
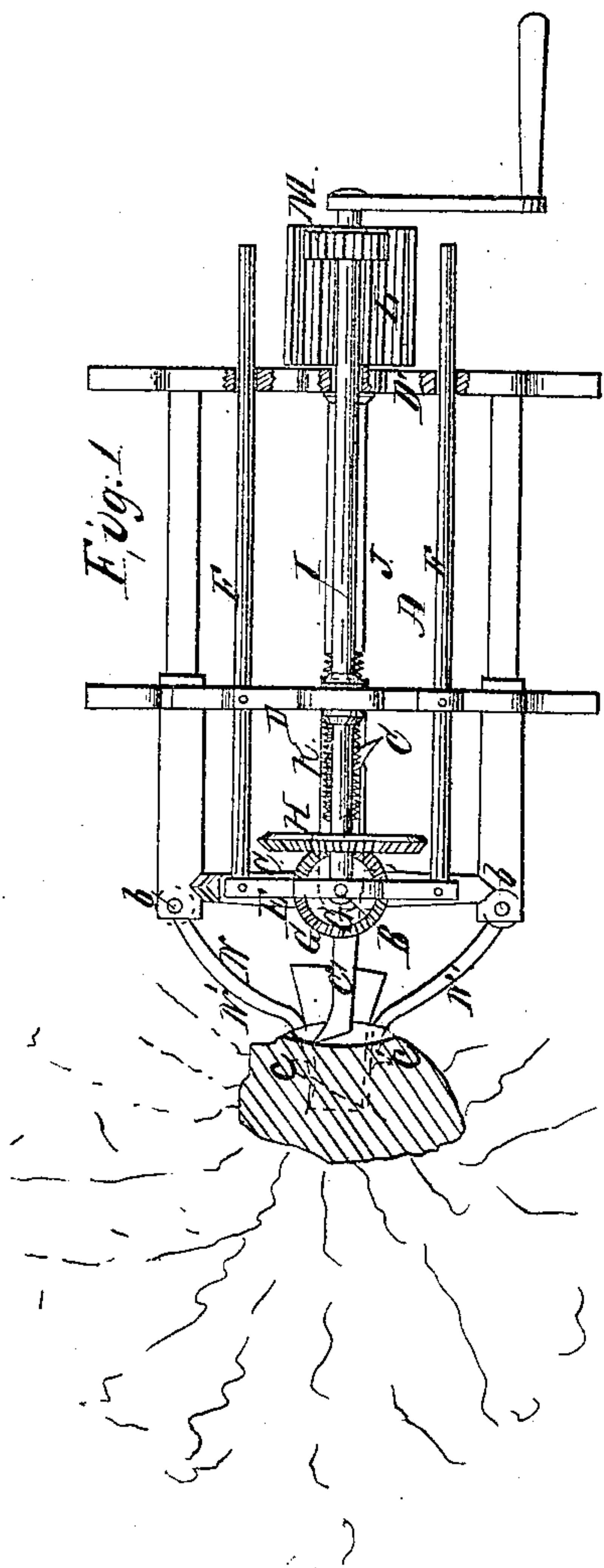


T. Durdan,
Felling Trees.
N^o 13,568. Patented Sep. 18, 1855.



UNITED STATES PATENT OFFICE.

THOMAS DURDEN, OF MONTGOMERY, ALABAMA.

MACHINE FOR FELLING TREES.

Specification of Letters Patent No. 13,568, dated September 18, 1855.

To all whom it may concern:

Be it known that I, THOMAS DURDEN, of Montgomery, in the county of Montgomery and State of Alabama, have invented a new and useful Improvement in Machines for Felling Trees; 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 part of this specification, in which—

Figure 1, is a top view of a machine for felling trees constructed after my invention. In this view the machine is represented as in the act of felling a tree. Fig. 2, is an end view of the same. Fig. 3, is a vertical longitudinal section through the center of the machine. In this view the machine is also represented as in operation.

Similar letters of reference indicate corresponding parts in each of the several figures.

The nature of my invention consists in the employment, for the purpose of felling trees, of a series of cutters on a shaft which has a rapid revolving motion, and simultaneously therewith, a slow forward movement imparted to it by mechanism substantially the same as hereinafter described.

To enable others skilled in the art to make and use my invention, I will proceed to describe its construction and operation.

A, in the accompanying drawing represents the platform upon which the machine is constructed. B, the vertical revolving shaft which carries the radial cutters C, C, C', C', which project out horizontally from it as shown. This shaft rests on a sliding metallic standard or bearing D, and has its upper end turning in a cross head E, attached fast to the standard D, by means of two rods F, F, as represented, in order that it may be moved back and forth.

G, is a small bevel wheel secured fast on the shaft B, and H, a larger bevel wheel arranged on a horizontal sliding shaft I, and gearing into the bevel wheel G, and thus giving motion to the cutters when the machine is in operation.

J, is the main driving shaft; it is arranged directly under the shaft I, on a stationary metallic standard D', as represented and has a screw K, cut on its front end which works in a female thread *a*, cut in the movable standard D. On the rear end of this shaft a barrel pinion L, is secured which works into a pinion M, on the sliding

shaft I, and thus communicates a rapid rotary motion to the cutters, while the screw causes them to be fed slowly forward, up to the tree.

The rods F, F, extend back some distance and pass loosely through the stationary standard D', and serve as guides to the movable standard, in its back and forward movement.

By examining the drawing, it will be seen that the cutters are formed or secured on radial arms which are of greater length than the diameter of the tree and therefore are capable of cutting entirely through the tree without the necessity of shifting the position of the machine. It will also be seen that the cutters are different in form, those C, C, which I denominate the main cutters or workers being concave or grooved and serving for performing the cutting operation, while those C', C', which I call the assistant cutters or clearers, serving for clearing out the chips as fast as the cutting is performed.

By the employment of cutters and clearers as just stated and giving them a rapid revolving motion, the liability of their being cramped by the weight and sap of the tree is very materially lessened. And by the employment of the screw on the driving shaft and combining it with the gearing G, H, L, M, the machine is much simplified, greatly reduced in size and rendered less liable to derangement.

N, represents the dog, by which the machine is anchored to the tree. The jaws N', N', of this dog turn on fulcra *b*, *b*, and each has a stop or projection *c*, cast on it which after the jaws are inserted in a hole bored in the tree is forced laterally into the tree, by driving a wedge between the jaws as shown and thus prevent all possibility of the machine moving while the tree is being felled.

Operation: The machine having been placed in a proper position and the jaws of the dog forced into the auger hole formed in the tree and confined, as shown, by a wedge, motion is communicated to the driving shaft J, by hand or otherwise, and transmitted by means of the barrel pinion L, and M, to the shaft I, which instantly imparts a rapid rotary motion to the cutter shaft through the bevel wheels G and H; simultaneous with the impartation of this motion, the screw K, causes the movable

standard and its attachments to have a slow feed toward the tree and thus, as fast as the cutters make one cut they are moved forward ready for another until the tree is cut entirely through. The cutters C, C, acting first, and those C', C', following after and preparing the way for each new cut.

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

10 1. The employment of cutters C, C, C', C', of the peculiar form shown, in combina-

tion with the feeding arrangement K, L, M, substantially as and for the purpose set forth.

2. I likewise claim providing each of the jaws of the dog with a projection b, and arranging and operating them, as shown for the purpose set forth.

TH. DURDEN.

Witnesses:

J. I. DAVIDSON,
W. G. ANDREWS.