to report on the efficiency of the machinery, and he found scarcely a machine in the place in which there was not some practical blunder. In one machine for cutting oak, the speed of the cutters was not more than 700 feet per minute, whilst upwards of $\frac{1}{8}$ th of an inch was taken off at each cut. He thought that wooden frames had their advantages, and that much of the prejudice which existed against them, in England, was owing to their not having been properly constructed. They should be built of hard wood, and the joints be made so as not simply to depend on mortise and tenon, but be shouldered in. If properly constructed, they would be found to last a long time, without shaking loose, and they absorbed the vibration of the cutters, at high speeds, to a much greater extent than solid iron frames. His views on the subject of American machinery of this character had been so well expressed, in the Report by Mr. Whitworth, on the New York Exhibition,¹ that he would conclude by quoting the following passage:—"Although it cannot be said, that in England nothing has been done in this branch of manufacture, it must be confessed, that the improvements which have been made have not been extended, as they might have been, to ordinary purposes."

November 24, 1857.

ROBERT STEPHENSON, M.P., President,
in the Chair.

The discussion upon the Paper No. 966, "On the Conversion of Wood by Machinery," by Mr. G. L. MOLESWORTH, having been renewed, was continued to such a length as to preclude the reading of any other communication.

GIBSON'S SELF-ACTING RAILWAY SIGNAL.

After the meeting a model was exhibited of Gibson's self-acting Signal and Telegraph for Railways. This apparatus was described, as being intended to supply the want of a system of railway signalling, which should be efficient, and whilst answering every purpose, for which Railway Signals could be required, should be simple in construction, and not liable to be misunderstood, or to get out of repair; being, at the same time, independent of the attention, or the neglect of servants.

The apparatus consisted of a continuous arrangement of signal-

¹ Vide "Special Report of Mr. Whitworth on the New York Industrial Exhibition." Presented to the House of Commons by command of Her Majesty, in pursuance of their Address of February 6th, 1854.

ling, set in motion by the engine, which, in passing over a lever placed close withinside the rail in any desired situation, caused a signal-post (No. 1) to rotate partially, and so to indicate to the following train the close proximity of a preceding train. The signal-post (No. 1) remained in this position, until the engine arrived at the next signal-post (No. 2), the lever opposite to which, when depressed by the engine, caused it to rotate similarly to the signal-post (No. 1) previously passed, which was at the same time replaced in its original position. The engine then reached signal-post (No. 3), and it and No. 2 would be simultaneously acted upon as were Nos. 1 and 2. Then No. 4 received the responsibility, and released No. 3, and so on. It answered equally well by night and day, and the present signal-posts could be adapted to it.

By the same motion of the horizontal levers, audible, or visible telegraphic communications could be made with any station, or stations, either in advance, or in the rear of the moving train; thus indicating, by the continual ringing of a bell, if necessary, the approach, departure, present position, or passage through a tunnel, or over any dangerous part of the line. On foggy, or stormy nights, or where there were sharp curves, &c., this would be found valuable.

Another important part of the system was the contrivance for the self-acting contraction and expansion of stretched wire, by means of which hand-signals, &c., could be acted upon at a distance of 2,000 yards, being far beyond the present working distance, and the wire, both in summer and winter, would always be at the same degree of tension.

The whole apparatus was described as having been in efficient action for some time, at Binn's Junction, on the North Eastern Railway, where thirty trains passed daily.

December 1, 1857.

ROBERT STEPHENSON, M.P., President,
in the Chair.

THE following Candidates were balloted for, and duly elected :—
JOSEPH HAMILTON BEATTIE, as a Member; ALEXANDER HILL
MACNAIR, JAMES SHAND, EDWARD WALKER SHAW, JAMES JENKIN
TRATHAN, and THOMAS BURDETT TURTON, as Associates.

The discussion upon the Paper No. 966, "On the Conversion of Wood by Machinery," by Mr. G. L. MOLESWORTH, having been renewed, was continued to such a length as to preclude the reading of any other communication.