

The foregoing facts are not submitted to depreciate the instrument named, but are simply offered in self-defence.

FEATURES OF THE THOMPSON IMPROVED INDICATOR.

Parallel Motion.

The Parallel motion of the Thompson Improved Indicator is the most accurate of anything used or ever seen in the indicator line, and errors said to exist in drawing correct vertical lines do not appear in the limited movement of the pencil in taking diagrams from a steam-engine.

The parallel movement of the pencil is secured by a link attached to and governing the lever direct. The pivots of this link are made free from any appreciable lost motion, and will remain so indefinitely; but, if any such lost motion should exist, it will affect the integrity of the parallel movement only to an extent equal to it, *not three or four times that amount.* The parallel movement will be affected only by the play in the pivots of the link, and not in any degree or manner by the play of any other parts. When the parallel movement is affected by controlling the connecting-rod, either by a curved slot in it and a guiding roller, or by attaching the link to it, *as in other instruments,* it (the parallel motion) becomes dependent for its accuracy on the fit of several parts, play in any one of which will cause an uncertainty and possible inaccuracy in the parallel movement equal to three or four times the amount of such play.

The force required to guide the lever in its parallel movement is received on the pivots of the link alone, where the friction it causes is practically inappreciable.

With the slot and roller device, this guiding-force is received on several rapidly moving surfaces, multiplied in amount by leverage. The same is true to a considerable extent of the plan of attaching the link to the connecting-rod.

The Paper-Cylinder Movement.

It is so constructed that the tension of the coiled drum spring within the paper cylinder can be increased or decreased, for different