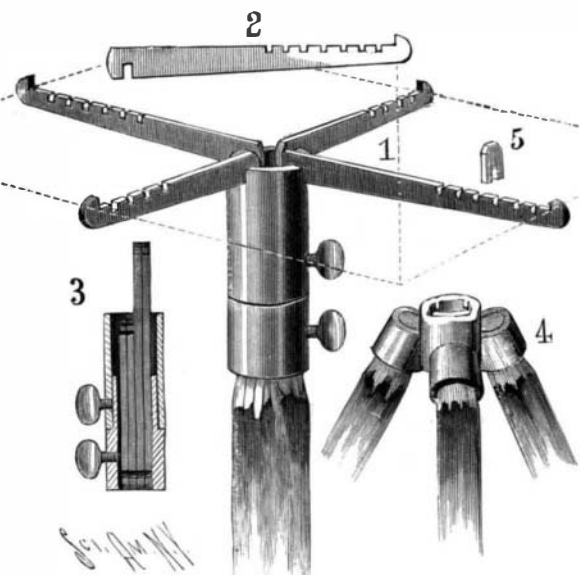


A HANDY CAMERA STAND.

The ingenious camera stand shown in the accompanying illustration has been patented by Mr. Lafayette Noble, of No. 40 Washington Street, Haverhill, Mass. It consists of a ferrule, which is adapted to be fitted on the top of a stick which has been driven into the ground for the purpose. It is secured in place by a thumbscrew, and its upper end is reduced to carry a cylinder, which is slipped on over the same, and also held in place by a thumbscrew. The upper end of this cylinder is provided with notches, which receive the hooked ends of four arms, which, when in place, extend at right angles to each other in a horizontal

**NOBLE'S CAMERA STAND.**

plane, and form a base for the camera to rest on. The outer ends of these arms are provided with upwardly projecting lugs, which engage the ends and sides of the camera. The upper edges of the arms are notched to receive the lower forked end of a block, Fig. 5, which extends above the arm and engages a recess in the bottom of the camera. By this arrangement lateral and longitudinal movement of the camera are entirely prevented. It will be seen that, by loosening the upper thumbscrew, the cylinder, arms, and camera may be swung round into the desired position. If so desired, the lower ferrule may be formed to receive three supports, as shown in Fig. 4. It will be seen that when not in use the arms can be unhooked and slipped into the ferrule, as shown in Fig. 3, the whole apparatus occupying so little space that it can easily be carried in the pocket. On account of its handiness, it should specially meet the needs of the amateur photographer.

LORD RAYLEIGH has been appointed a foreign member of the Copenhagen Academy of Science.

IMPROVED GAS ENGINE.

Mr. Harry L. Parker, of Princeton, Illinois, has patented an improved gas engine, the details of which are shown in the accompanying illustration. The invention consists of an auxiliary cylinder, having a valved connection with the main cylinder, and provided with a valved piston moving in unison with, and traveling in the same direction as, the main piston. The main piston is connected at its front face by a pitman with the main driving shaft, and on the rear face it has a hollow piston stem which passes into an auxiliary cylinder, where it carries a piston. The two cylinders are connected by suitable ports and by a conical plug valve operated from the main shaft, whereby the explosive mixture may be admitted from the auxiliary to the main cylinder. The main cylinder is also provided with an exhaust port, which leads through said valve to the final exhaust as shown. In the engraving the engine is on the forward stroke, and the cylinders are connected through the valve; on the return stroke the valve will be thrown over, opening the exhaust from main cylinder and closing the ports between the two cylinders. The inner end of the main cylinder is provided with a diaphragm to prevent the mixture from burning faster than it enters the cylinder. The ignition is done by suitable electrodes set in the head of the cylinder. The auxiliary cylinder is provided with a chest at its outer end, connected with the gas and air supply, which contains a port operated by an outer valve and controlled by an inner self-closing valve as shown. A similar valve and port are provided in the auxiliary piston, said port being controlled by a self-closing valve. In operation, when the two pistons are on the forward stroke, the explosive mixture is drawn into the auxiliary cylinder, the amount being regulated by the outer valve in the chest. On the return stroke the mixture passes through the port in the auxiliary piston into the annular space between the hollow piston stem and the cylinder, where it is compressed to four or more atmospheres, according to the relative diameters of the cylinder and piston stem. The plug valve is now in the position shown in the engraving, and the mixture will pass into the main cylinder, and, becoming ignited, will propel the main piston. During this operation another charge will be drawn in for the following stroke. The construction is such that a 50 horse power engine could be started by means of a hand air pump and a small reservoir, carrying 20 or 30 pounds pressure.

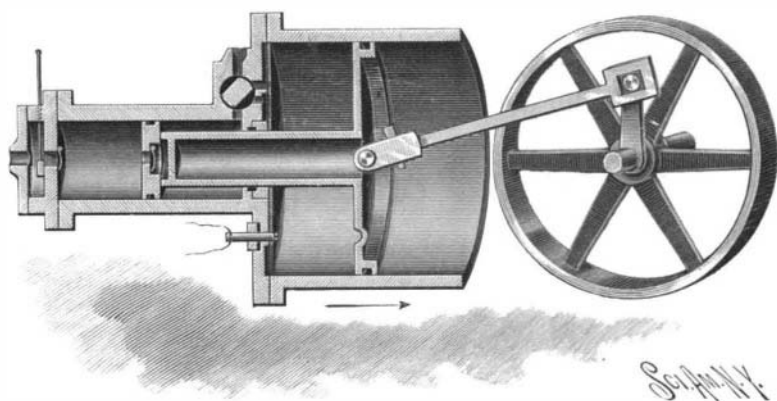
PATENT AUTOMATIC COPYING LATHE WITH AUTOMATIC SCREW FEED.

This machine has been designed for turning from patterns all kinds of irregular shapes, such as spokes,

neck yokes, singletrees, hammer, hatchet, railroad, mining pick and ax handles, shoe lasts, gun stocks, and other similar wooden articles. It has been constructed from entirely new designs and embraces improved labor saving features, which increase the quality of the work and enable a facsimile of any pattern placed in the machine to be produced. It is massive and heavy, built from iron and steel throughout, and designed for the hardest service.

The cutter head is fitted to a heavy steel spindle, running in large bearings attached to a vibrating frame, which is traversed upon planed ways across the path of the material to be turned by means of a heavy screw. The hand lever projecting up over the carriage is used for bringing the cutter head up to the work, or locking it back out of the way when not in use. The feed can be instantly changed from right to left or from left to right, which effects a saving of time, as the machine is prepared to commence the cut at either end of the stick. It will be observed that the knives cut on the under side of the material, discharging the chips downward and overcoming any liability of injuring the operator.

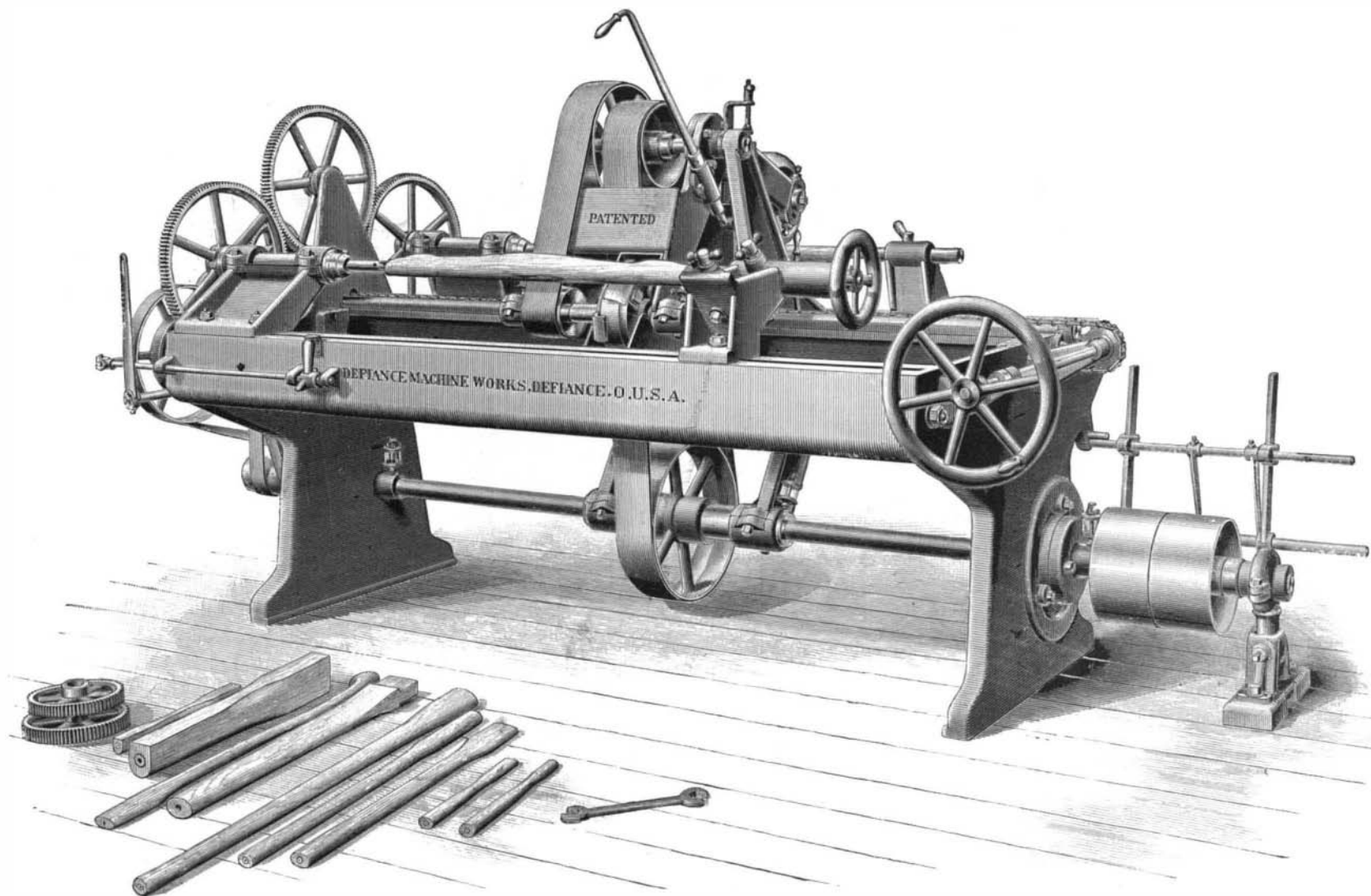
The feed is very powerful, with three changes of speed, and automatic in its action, stopping instantly when the end of cut is reached, or arrested at any point desired. The tail stock is fitted on top of the frame, which is planed true, and is always in perfect

**PARKER'S IMPROVED GAS ENGINE.**

alignment with the head center, and it can be quickly adjusted horizontally to or from the head center for short or long turning, taking 48 inches at the longest or anything shorter, and turning work from the smallest sizes up to 8 inches in diameter.

The pattern which guides the path of the cutter head and governs the shape of turning is placed upon centers at the rear portion of the machine, and it should be of an exact duplicate of the shape desired to turn, but the size of the article turned may be varied, either larger or smaller, from the same pattern.

This machine, which is manufactured by the Defiance Machine Works, Defiance, Ohio, works per-

**PATENT AUTOMATIC COPYING LATHE WITH AUTOMATIC SCREW FEED.**