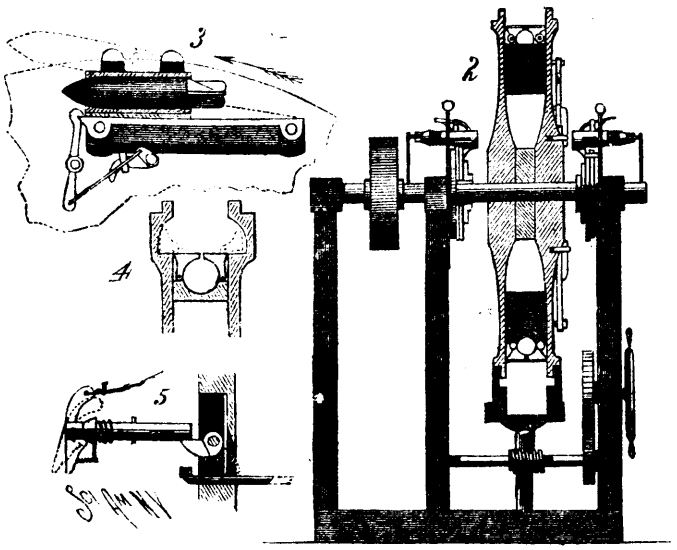

DETAILS OF DYNAMITE GUN.

jected into space. As was observed, the carriers are pivoted at one end, which allows a certain amount of outward play, for the reason that when a body is suddenly set free from the outer edge of a revolving disk or carriage, that body, owing to the centripetal force, will follow a curved path, therefore, the projectile carriers are mounted to admit of a certain amount of outward play in order to counteract to a certain extent their tendency toward a curvilinear trajectory. The gun can be used as a mortar for high angle fire or close siege work, and is also adapted for long range. The journals on each side of the wheels are provided with flanges and concentric disks (see Fig. 2) which revolve on sleeves extending on the inside of the journals. These concentric disks have the firing bolts attached to the peripheries (see Fig. 5), and they are adjusted by caps and set screws to the journal flanges, the whole being surrounded by an annular rim, indexed with the degrees of two quadrants, so that by adjustment of the concentric disks, the alidades attached to the sleeves through which the firing bolts slide will point to the degrees of elevation or depression desired.

The gun can be discharged at any angle in the vertical plane, while the arc of fire in the horizontal plane is the same as in any other piece of ordnance. The tripping device on the rotary disk is arranged in such a way that the shell can be discharged at the point previously fixed upon ; this being entirely arranged before discharge by the position of the quadrant. The tripping devices for two of the carriers are located upon the right hand disk, and those for the other two carriers on the left hand disk, whereby two of the shells may be discharged at a time, the other two being left in the carrier until it is desirable to discharge them. The four shells may be discharged in rapid succession, and the trajectory of each being practically identical, each successive shot will add to the destruction done by the preceding one. One peculiarity of the gun or engine, as it might perhaps more properly be called, is its comparative noiselessness. There being no expansion of gases and no vacuum, there is no report of any kind, the only sound being the whiz of the shell as it passes through the air. There is neither flash nor smoke, report nor recoil, and there is nothing to apprise an enemy of the whereabouts of the gun, and the destroyer might come in the midst of an enemy unseen and unheard. It is hoped that a thorough trial of this new gun will be made, from which data may be obtained concerning the efficiency range, and practicability of this as a weapon of warfare.

The combination shot and shell designed to be used in this engine is of regulation shape, having a solid steel head for the purpose of producing the greatest penetration upon impact. It is provided with a steel rod or precussion striker, extending through the center, one end of which is adjusted in the apex of the ogival head, while the other end rests against a percussion primer, which upon impact explodes the charge of explosive, thereby producing a double blow by impact of the shot and by the subsequent explosion.

The shot can also be exploded submarine, being provided with a device which will produce an explosion in case the target should be missed. Should that target be a ship, that effect would thus not be wholly lost.—*Scientific American.*

PHOTOGRAPHING THE SUN OR MOON.—Mr. J. C. O'Loan of Liverpool writes to the *Scientific American* as follows:—"While experimenting with a ray of sunlight in a darkened room, I had my attention directed to pinhole pictures, and am of the opinion that startling results can be obtained in photographs of the sun or moon in this way. In a room darkened by blocking up the windows with thick paper, make a small hole in the paper with a darning needle, so as to admit a ray of direct sunlight. Hold a piece of paper in the path of the ray, 12 in. from the hole, you will have an image of the sun ½ in. in diameter, at 4 ft. an image of 1½ in. and so on. The size of opening used as lens does not alter the size of image at any given distance, but only in sharpness. Say the opening is 1 1-16 in., and gives a sharp picture at 4 ft., by enlarging the opening to one-eighth, the size of the image at 4 ft. would be still the same, but unsharp, so that the screen or plate must be removed to twice the distance to obtain equal sharpness. In a room 100 ft. long, a 12-inch picture of the sun could be had, and of the moon very much larger. A series of pipes 100 yards long for camera would give a 3-ft. photograph of the sun. In fact, there is no limit to size of image but the length of camera. Perhaps some one who has more time and space at his disposal than I have may take the subject up.