

IMPROVED CONTROLLING VALVE FOR ENGINES.

The annexed engraving shows two forms of controlling valve, invented by Mr. N. E. Nash, of Westerly, R. I., designed for application to engines doing variable work, such as hoisting, punching, and shearing metals, and many other varieties of work requiring an intermittent power.

The engraving shows one of the valves in longitudinal section, and the other having parts of the valve casing broken away to show the arrangement of internal parts.

The valve shown in Fig. 1 is similar to an ordinary globe valve on one side of the central partition, but a cylindrical ported extension, A, on the under side of the valve seat, is fitted with a plug or key, B, which is provided with ports corresponding with those of the part, A. The plug, B, has a stem, C, extending out through a stuffing box and provided with a hand lever by which the valve is opened or closed. The screw valve is adjusted to the maximum amount of steam, while the plug valve is used to reduce this quantity, more or less, down to just what would be required to keep the engine in motion.

In this valve the stem, C, is screwed into the plug, B, and the first result of moving the valve lever is to loosen the valve in its slightly conical casing, so that when it is turned by the further movement of the lever it is not worn by contact with its bearings.

Fig. 2 shows a valve which answers the same purpose as that shown in Fig. 1, and like that valve, one half of it is similar to a common globe valve. The valve seat is provided with a supplemental valve adapted to be opened and closed independently of the main valve, but which is inoperative except when the main valve is open. By this arrangement the ordinary or main valve may be used to limit the area of the valve opening, while the supplemental valve is employed to open and close the limited aperture.

The stem of the supplemental valve, D, extends through an ordinary stuffing box, and is provided with a forked head in which is pivoted the hand lever, G. This lever is fulcrumed in a link jointed to an arm projecting from the stuffing box. The pivot of the lever, G, in the forked head, F, is in reality a clamping screw provided with a hand wheel, H, and capable of drawing the two arms of the head, F, together so as to bind the lever, G, in any desired position. The motion of the lever, G, is limited in both directions by two screws passing through the arms, I, J. By properly adjusting the screw in the arm, I, the minimum of steam supply is regulated and the maximum is regulated by turning the screw in the arm, J.

The advantages of these valves will be at once recognized by engineers and machine owners running engines at variable speeds or where a variable power is required. The main valve may be set and locked by some person in authority to give the desired maximum velocity to the engine, when the supplemental valve may be operated by an unskilled attendant without danger of injury to the engine or machinery connected with it.

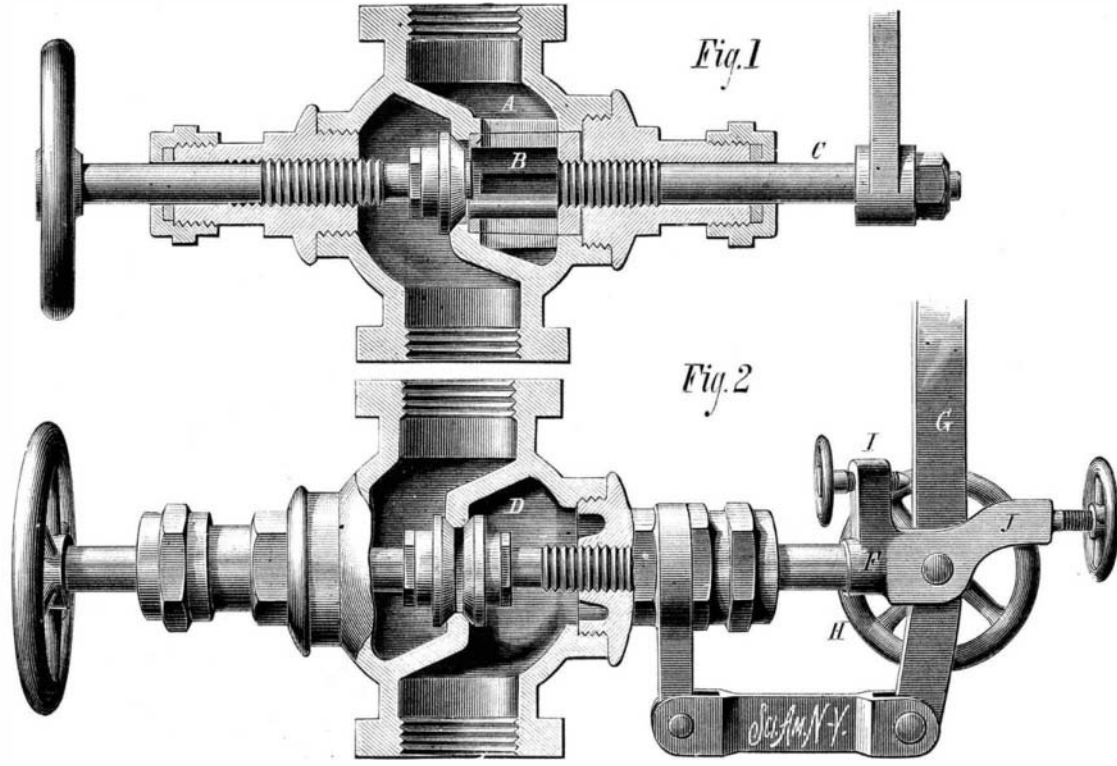
Further information may be obtained by addressing Mr. J. M. Pendleton, Westerly, R. I.

NEW POTATO DIGGER.

The improved potato digger shown in the accompanying engraving is the invention of Mr. James B. Taylor, of West Hurley, N. Y. It is not only adapted to digging potatoes, and freeing them from earth, but it may also be used to advantage for loosening the soil and destroying grass and weeds between the rows.

The plow, A, is suspended from a long bolt that extends across the rear of the machine frame, and is provided with a curved arm which is jointed to a lever, B, pivoted to the main frame and capable of engaging with a ratchet, b, so as to hold the plow at any desired elevation. A screen, C, consisting of a series of fingers projecting from a cross bar, is pivoted at one side of the machine, on the same bolt that sustains the plow, and is provided with an arm, D. At the opposite side of the machine the screen is supported by a small roller also on the bolt that supports the plow. The end of the arm, D, carries a roller that is engaged by a zig-zag cam on the axle. This cam is movable on the axle, and is provided with lugs that may be thrown into or out of engagement with clutch teeth on the hub of the driving wheel by a shifting bar, F, which is always pressed forward by a spring tending to throw the cam into engagement with the drive wheel. The shifting bar is provided with an in-

clined arm which is engaged by the lever, B, whenever it is thrown back to raise the plow, thus throwing the cam out of gear. It will thus be seen that by moving the lever, B, so as to throw the plow into position to operate, the shifting bar, F, is released, and the spring throws the cam forward into engagement with the drive wheel. As the machine is drawn forward the plow, A, passes under the hills of potatoes, and both potatoes and earth are forced backward over the screen, C, which being vibrated by cam, E, separates the earth from the potatoes and delivers the latter in rows on the top of the ground. In the engraving, Fig. 1 shows the implement in perspective, Fig. 2 is a partial side elevation, and Fig. 3 is a partial plan view.



NASH'S CONTROLLING VALVE FOR STEAM ENGINES.

A Singular Accident.

A machinist, employed in the Erie railway machine

shop, in a novel way, the rails of a disused inclined railroad a

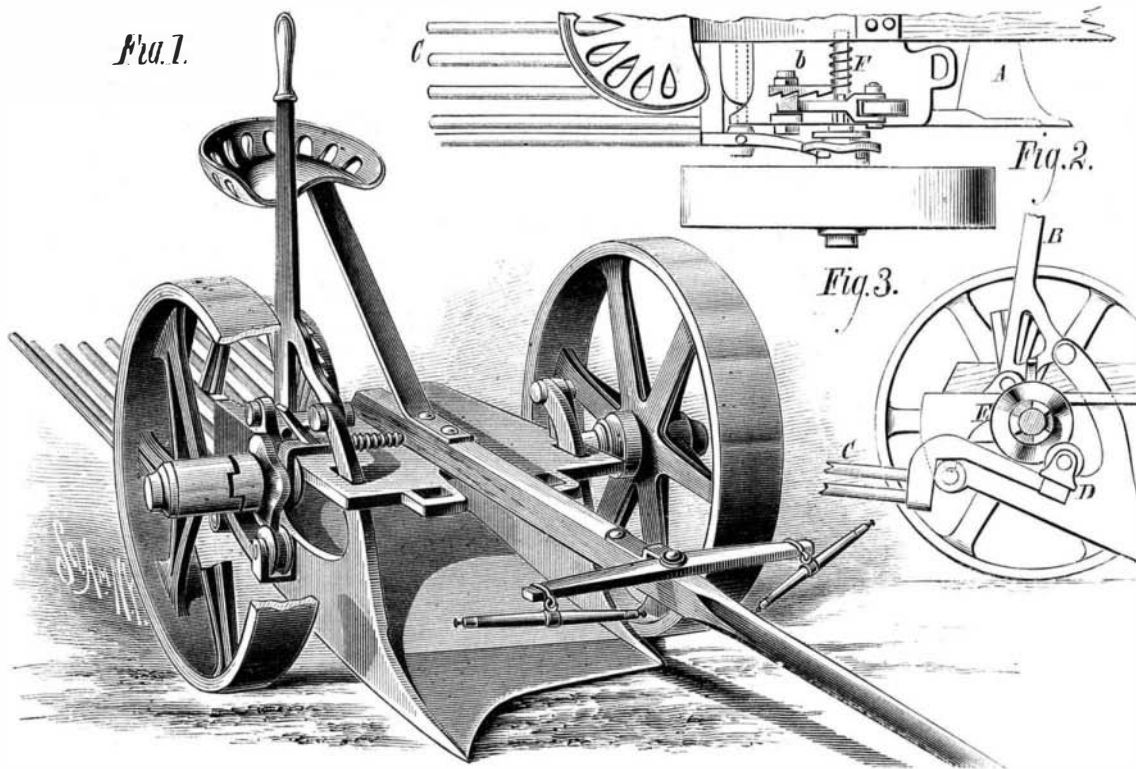
quarter of a mile long. The hill being steep and icy, it was impossible for workmen to take up the rails by working along the road, but as the rails had been joined together at the ends when they were laid, and made continuous strings of iron from top to bottom of the hill, the plan of starting each string entire by taking out the spikes and pulling it down at the bottom was hit upon. A number of the bottom rails of one line were removed, and then a rope was attached to the rest and a team of horses set to work to start the whole. The line of rails, nearly a quarter of a mile long, started from its place, but the ties being covered with ice, a result unlooked for by the engineer in charge followed. The long string of iron started down the hill by its own gravity, and was in a few seconds rushing along at great velocity. When the lower end struck the street at the bottom of the hill the string of rails was disconnected in several places, and instantly rails

were flying through the air in all directions, some of them being carried 300 feet. A long section of the line remained intact, and continued on its way. It dashed across the street, passed clear through a barn, grazed the corner of Mrs. Case's dwelling, demolished an out-house, and continued on with apparently undiminished speed. Leaving Mrs. Case's garden, the line of iron dashed

A Runaway Railroad.

An attempt was made at Oil City, Pa., Feb. 10, to take

up, in a novel way, the rails of a disused inclined railroad a quarter of a mile long. The hill being steep and icy, it was impossible for workmen to take up the rails by working along the road, but as the rails had been joined together at the ends when they were laid, and made continuous strings of iron from top to bottom of the hill, the plan of starting each string entire by taking out the spikes and pulling it down at the bottom was hit upon. A number of the bottom rails of one line were removed, and then a rope was attached to the rest and a team of horses set to work to start the whole. The line of rails, nearly a quarter of a mile long, started from its place, but the ties being covered with ice, a result unlooked for by the engineer in charge followed. The long string of iron started down the hill by its own gravity, and was in a few seconds rushing along at great velocity. When the lower end struck the street at the bottom of the hill the string of rails was disconnected in several places, and instantly rails



TAYLOR'S POTATO DIGGER.

shops, Jersey City, incautiously went to sleep during the dinner hour on a bench through which a large auger works. The whistle for starting did not rouse him, and when the machinery was set in motion the auger began to bore obliquely through his leg. His cries attracted the attention of his fellow-workmen, but before the machinery could be stopped his leg was bored through just below the knee.

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