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NEW SERIES.

Improved Combination of Fire Engines with Locomotives.

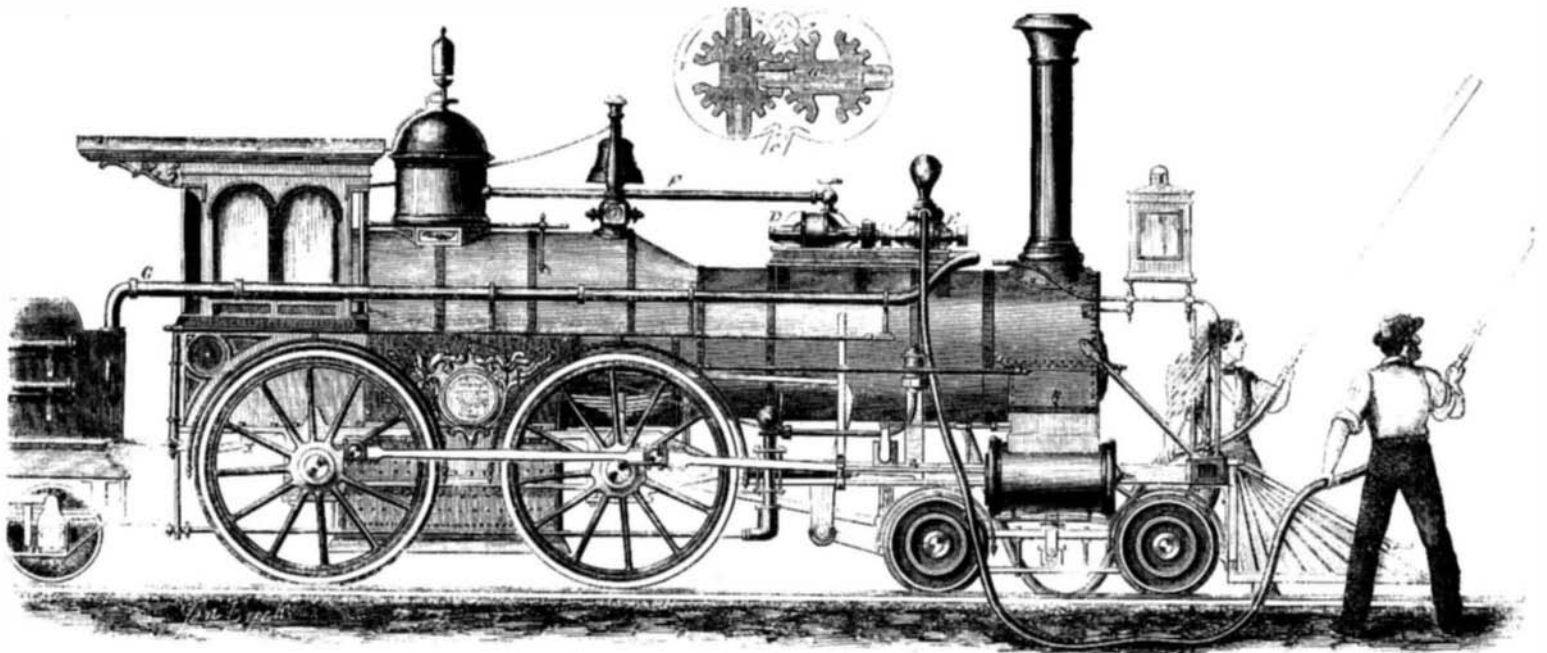
The officers and managers of railroads have long felt the need of some efficient and ready means for extinguishing fires, which are so liable to occur in and about the machine shops and other buildings at the several stations. Mr. Dyer Williams, Master Mechanic of the Middle Division of the New York Central Railroad, has devised a very simple combination, which most effectually accomplishes the purpose. At the principal stations of all the large railroads, a locomotive is kept for the purpose of transferring the cars from one track to another, and otherwise moving them about the station as required, and Mr. Williams conceived the idea that if a compact

attached, to throw two powerful streams of water at the same time.

The inventor has fitted one of these engines for the Syracuse station of the New York Central Railroad, and in relation to it he says:—

“The tank holds about 2,500 gallons of water, and it requires about eight minutes to be pumped empty, through an inch and a quarter nozzle, running the engine at as great a speed as the hose will bear. It is obvious that this size stream, thrown with such force, must extinguish a good deal of a fire, and by which time an additional supply of water could be flowing into the tank, either from the numerous large water tanks which supply the locomotives in the engine houses, or from the hydrants about the

or long leading hose, or both combined. There is also attached to the pump a length of hose of 50 feet, with hose pipe attached, coiled up, and ready for instant use, so that all that is necessary to be done to start a 1½-inch stream of water, in case the building where the engine stands should take fire, is to straighten out this hose, and open the throttle valve of the fire engine. This can all be done by one man, and in less than one minute from the time he steps into the locomotive. The engineer and fireman, and others who man this machine, all live within a few rods of the engine house, where this machine stands at night, so that they can all be called by the company's watchman, within a few minutes after an alarm of fire is given, and if a dispatch is received of



WILLIAMS'S COMBINATION OF FIRE ENGINES WITH LOCOMOTIVES.

steam pump were attached to this switching engine, it would form a most effective means of extinguishing fire, which would always be at hand and ready for instantaneous use. He accordingly worked out the details and applied for a patent, which was granted by the department, and we present an illustration of the plan in the accompanying engravings.

The claim in the Letters Patent applies to any form of steam fire engine, the engraving represents the one invented by Birdsill Holly, which was illustrated and fully described on page 129, Vol. II. (new series) SCIENTIFIC AMERICAN. It is a rotary engine and pump, and is represented in cross section in Fig. 2 of the engravings. Two cylinders are coupled together as shown, and in these, two revolvers, *a* and *a'*, are fitted to turn steam tight. The steam enters at *b*, and is discharged at *c*, as indicated by the arrows. The pump is of precisely the same construction. The manufacturer says that this rotary engine and pump has been tested on a large number of fire engines now in use.

In this cut, *D* represents the engine and *E* the pump. A steam pipe, *F*, connects the engine with the boiler, and a water pipe, *G*, leads from the tank in the tender to the pump. Two discharge pipes are connected with the pump, and to these hose may be

yard, or depot, or anywhere along the line of track, down nearly to the tunnel.

“This engine is also intended to be used for the extinguishment of any fire that may originate through the central part of the city, say within 1,500 or 2,000 feet of the line of track, as there is a hose cart or reel, attached to the top of the tank, on the rear end, which carries at all times a large supply of extra hose for this purpose, as also to reach wood piles and station buildings along the line, where there is not a supply of water. In addition to the suction hose, which is in all cases to be attached to the tank, where water can be supplied to the tank, there is carried on the sides of the tank, by means of hooks or brackets attached for that purpose, four pieces of extra suction hose of 14 feet in length each, which can be attached to the usual suction hose, making in all about 80 feet, to be used as occasion requires. For instance, when at a wood pile that is on fire along the line where there is no head or elevation of water from which to fill the tank, this hose can be disengaged from the tank, and connected together, and lead off into a stream or pond, within 80 feet, or the length of the suction hose, and the length of suction can be extended to almost any length, so that almost invariably a fire can be reached either by a long suction

a fire up the line, this machine and men can be on their way to it within ten minutes after the receipt of such dispatch, if in day time, and 15 or 20 at the farthest if in the night.

“In addition to the usual pump of the locomotive, a Giffard Injector, an independent steam, or as it is sometimes called, Donkey Pump, is attached, to supply the locomotive boiler with water, while standing in the engine house at night, or when the fire engine is in operation at a fire.”

The patent for this invention was granted April 22, 1862, and further information in relation to it may be obtained by addressing the inventor at Syracuse, or H. C. Silsby (to whom an interest in the invention has been assigned, and who manufactures the engines), at Island Works, Seneca Falls, N. Y.

THE *California Farmer*, of June 6th, says some twenty-five hundred pounds of silver bullion passed through Placerville, the week previous, from the silver mines of Washoe.

A SERIES of gigantic canals for irrigation and navigation are projected for India. The length of canals for irrigation will be 681 miles; for navigation 145 miles.