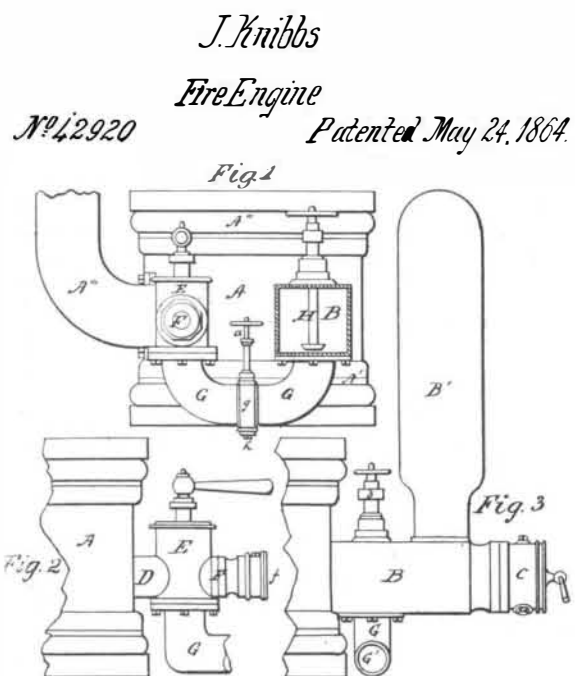


AWARD OF OVER \$800,000 FOR INFRINGEMENT OF KNIBBS FIRE ENGINE PATENT.

The United States Court has rendered judgment against the city of New York in favor of Christopher J. Knibbs for infringement of a patent granted as long ago as May 24, 1864. The verdict allows the plaintiff the large sum of \$818,074.32, and it marks the latest step in a famous suit which has already been dragging its weary way through the courts for nearly thirty years, and is likely to be in litigation for several years to come if, as is stated, it is the purpose of the city to carry the case to the higher courts.

The patent was granted to J. Knibbs and bears date



FACSIMILE OF DRAWINGS IN ORIGINAL PATENT.

May 24, 1864. It has generally been known as the Knibbs relief valve; though the term does not adequately describe the device, as may be seen from the wording of the first claim: "The returning of any excessive water in the force part or section of a steam, fire or other engine pump to the suction part or section thereof." Knibbs later assigned his right to C. J. Campbell. In 1865 the New York Fire Department fitted the valve to thirty-three fire engines, and the success of the new device may be judged from the fact that by the close of the year it had been fitted to every fire engine in the city.

There was a dispute with Campbell as to the proper amount to be paid for the use of the patent, the city claiming that the sum demanded was out of proportion to the value of the patent. Suit was instituted in the State Court, and after a few years' litigation it was carried, on November 24, 1877, to the United States Circuit Court. Here, after years of further litigation, Campbell's claim of exclusive right in the patent has been sustained and an accounting of profits by the city in the use of the valve has been ordered.

We present in the accompanying engravings, Figs. 1, 2, 3, a facsimile of the drawings accompanying the Knibbs patent, and also Fig. 4, a drawing showing a Knibbs valve and return pipe, as fitted on one of the New York fire engines to-day. Figs. 5 and 6 represent an improved valve of the Knibbs type in which the opening of the valve is performed automatically by the pressure of the water. The latter is frequently fitted

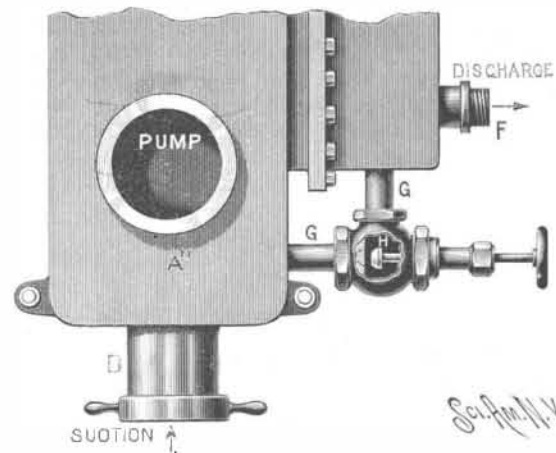


Fig. 4.—KNIBBS VALVE AS USED ON FIRE ENGINES TO-DAY.

on the same engine as the hand-worked valve, and the two valves are used to about the same extent in the New York Department, though there are some cities in which the simple hand valve is in exclusive use.

The object of the Knibbs device was to enable the pump to be kept running at full speed independently of the number of hose pipes through which it was discharging. The specification states that great difficulty had been experienced when it was necessary to shut off some of the hose pipes attached to the discharge; for either a waste water valve had to be opened, which resulted in

the streets being flooded, or, if this were not done, "the pump would become somewhat strained and flooded." Knibbs conceived the ingenious idea of throwing the surplus water back into the suction pipe, and he carried it out by means of the simple device shown in his drawings, which consists of a short length of pipe connecting the discharge with the suction pipe, in which is placed a simple hand-worked throttle valve.

In the drawings Fig. 1 is a front view of the pump cylinder, showing the suction and the delivery pipes; Fig. 2 is a side view of the delivery, and Fig. 3 is a side view of the suction pipe. A represents the pump cylinder, B the suction pipe, D the delivery pipe, and E is the valve for closing the discharge. The suction hose is attached at C and the discharge hose at F.

The above parts were similar to those in use before Knibbs entered the field. His invention consisted in connecting the discharge and suction by a short pipe, G, and placing a throttle valve, H, at the point where G enters the suction pipe, B. This valve, it will be seen, gave the engineer complete control of the pressure in the hose pipes. When all the pipes were in use, H was closed. If one or more hoses were suddenly shut off, H was opened and the surplus water was allowed to flow back into B. If all the hose pipes should be shut off, H would be completely opened, and the water was simply rotated, or "churned," as the firemen call it, passing through the pump and being returned by the pipe, G.

The advantages of the device are obvious, and it has proved so effective that it remains in use practically unaltered to the present day. This will be evident by reference to Fig. 4, which shows the Knibbs valve as fitted to a modern New York fire engine. In this case, F is the discharge and B the suction, and the Knibbs "relief" or "churning" device is represented by the short pipes, G, and the elbow valve, H.

Ordinarily the engineer can tell when a hose has ceased taking water by the rise in pressure, but not always. The rise may be occasioned by the hose getting jammed, and therefore it is necessary and customary to send word to the engineer when a hose is shut off. To insure a prompt action of the Knibbs valve, the ingenious improvement shown in Figs. 5 and 6 has been brought out and is now in extensive use. Fig. 5 is a cross section of the pump, and it will be seen that the valve, A (answering to valve, H, of the other drawings), is seated in the wall or diaphragm which divides the suction from the discharge. The valve stem, B, passes out through a hollow cylindrical shaft which is firmly screwed into the cylinder wall of the pump on the discharge side, and at its outer end B is screwed into an outer cap, C. The cap, C, is connected by an intermediate sleeve, D, with an inner cap which rests at E upon the flange of the fixed portion of the valve. A powerful coil spring bears at one end against a ring at the upper end of the hollow shaft and at the other end against the inner cap above mentioned. By turning the sleeve, D, the valve, A, may be kept down upon its seat with the required pressure. The water is free to pass up the hollow shaft, but is prevented from returning on the outside of it by a rubber packing ring, as shown. The water being free to press upon the inner faces of A and C, it will have a tendency to lift C, and therefore A, with a pressure due to their difference of area. This is prevented and the required pressure in the water is maintained by turning the sleeve, D, until the proper tension is put upon the spring. If one of the hose pipes be closed by the firemen, the increased pressure on C will cause A to lift and will allow the water to pass from the discharge to the suction. When all the nozzles are again in use, the pressure will drop and the valve, A, will close.

In the controversy with Campbell the city does not deny that it is using and has been using the Knibbs patent; its contention is that the compensation asked is excessive. On this point there may be various opinions; but we think that, in view of the extreme usefulness of the invention, the vast saving it has made in preventing the wetting of goods by the excess water, and the many years during which the city has had the benefit of its use, the award of Judge Wheeler will not appear to be by any means excessive.

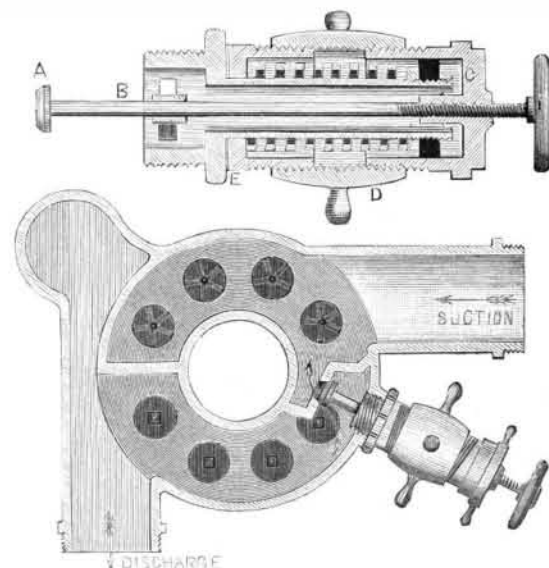
In conclusion, we would draw attention to the fact that the second claim of the patent is all-embracing and covers in very simple but comprehensive terms the idea of the patentee. It is as follows: "The connecting of the discharge or force part or section of a steam, fire or other engine pump to and with the suction or supply section thereof by means of the tube, GG, and the regulating valve, H, or any equivalent therefor."

Meteorology in Persia.

Letters which have reached us from Bushire, on the Persian Gulf, dated January 9, and containing news which has not yet reached the London press, show that the Persians are not at all disposed to lay all the blame of the drought on Providence. Their want of fatalistic consideration has almost created an international incident. The agricultural population of the Bushire district, annoyed at the want of rain, turned their wrath upon the European Telegraph Department and especially upon some landmarks which had been

erected by Lieutenant Cunningham, R.E., about two years ago, on account of the Meteorological Survey of India. To these obnoxious landmarks the deficient rainfall was ascribed. The Superintendent of Telegraphs, besieged in his office by a threatening mob, at once wired to the Resident that affairs were critical, and H. M. S. Sphinx and the steamer Lawrence were ordered at once to Bushire.

Stimulated by this apparition, the governor dispatched troops with a gun against the rioters; but too late, alas! to save from destruction the casus belli, the survey pillars, the erection of which had so exasperated the heavenly powers. Strange to say, heavy rain fell in Bushire and the neighboring district on January 6, so that the people are convinced of the correctness of their suspicions and their action. The ringleaders are less certain: for about twenty of them were soundly

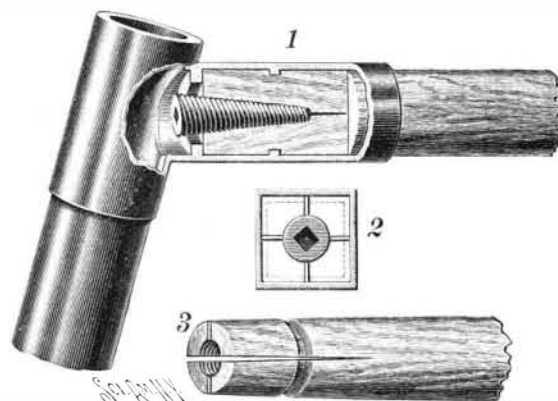


Figs. 5 and 6.—AUTOMATIC FORM OF KNIBBS VALVE AS USED TO-DAY.

bastinadoed by the governor to impress upon them the fact that there is no advantage in propitiating the heavenly authorities unless the earthly powers have been also effectively "squared."—London Standard.

A BICYCLE FRAME IMPROVEMENT.

In bicycle frames made of wood, the different frame members being joined by metal sockets, difficulty has sometimes been experienced from the ends of the frame members becoming loose in their sockets, and to obviate this trouble the improvement represented in the accompanying engraving has been patented by Alex. Pinover, of Nos. 42 and 44 East Houston Street, New York City. Fig. 1 is a sectional view of a portion of a frame embodying the improvement, the wood frame member extending into a metal socket connected to the front post, and the socket having an inner annular shoulder. The several sockets comprised in the frame will embrace the features shown. The end of the frame member, as shown in Fig. 3, has longitudinal kerfs or slits, a conical bore, and an annular channel corresponding with the annular shoulder of the socket. In connecting a frame section to a socket, the end of the frame member is forced beyond the inner annular shoulder of the socket, until such shoulder and the annular channel on the frame member coincide, and a spreader in the form of a tapered screw is inserted in the conical bore in the end of the frame member, the screw being placed in position and turned by a suitable tool. In Fig. 2 the improvement is shown as applied to an angular or square socket, the end of the frame



PINOVER'S BICYCLE FRAME.

section being then correspondingly shaped. In either case, as the screw is forced inward the outer surfaces of the end of the frame section are forced tightly against the inner walls of the socket, making it practically impossible to detach the parts.

THE railway between Jaffa and Jerusalem is in good working order and the trains run between the two places with great regularity. Last year nearly 17,000 tons of freight was transferred between the two places. The railway has resulted in a considerable number of commercial travelers visiting Jerusalem.