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## Origin of Fires.

"The origin of fires in London," says the *Fireman's Gazette*, "has now been recorded for about twenty years. And it has been observed that not only the most frequent causes from year to year have kept the same ratio, but even those which are so peculiar that one would never expect to hear from them again. From the long list given, we copy a few.

Curtains . . . . .	2,511	Smoking tobacco . . . . .	166
Candles . . . . .	1,178	Reading in bed . . . . .	22
Flues . . . . .	1,555	Sewing in ditto . . . . .	4
Gas . . . . .	932	Smoking in ditto . . . . .	2
Stoves . . . . .	494	Spontaneous combustion . . . . .	43
Incendiarism . . . . .	89	Cat . . . . .	19
Carelessness . . . . .	100	Dog . . . . .	6
Intoxication . . . . .	80	Clothes-horse upset by . . . . .	1
Lucifers . . . . .	80	monkey . . . . .	1
Children playing with . . . . .		Lightning . . . . .	8
Lucifers . . . . .	45	High tide . . . . .	1

An inspection of the above list will disclose a deal of curious information. Who would have supposed curtains to be so dangerous? And since they can be so easily dispensed with, without injury to comfort or taste, would not common prudence seem to require it? Reading in bed appears to be seven times as dangerous as smoking—and a cat is more than three times as hazardous as a dog."

## Explosion of an Infernal Machine.

Intelligence has been received at Berlin that a Prussian merchant-schooner, belonging to Stralsund, had been lost in the Gulf of Finland, from coming in contact with one of Dr. Jacobi's infernal machines. The schooner was laden with supplies for the English fleet, and blew up by the explosion of one of the submarine inventions sent afloat by the Russians in those waters.

Saltpetre is very scarce and dear at present, owing to the war in Europe.

## Improvement in Windmills.

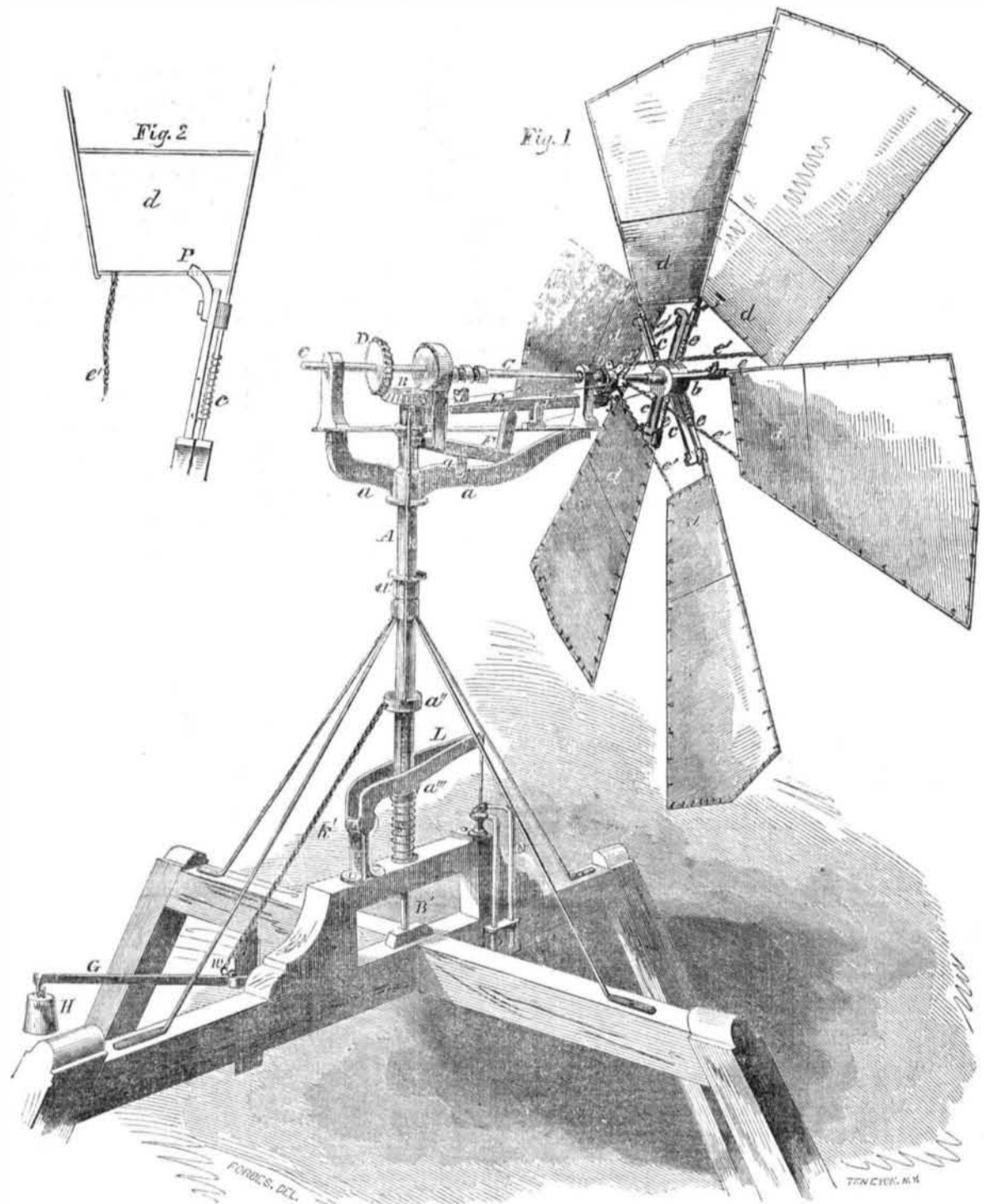
The accompanying perspective view, (figure 1,) and the section view, (fig. 2,) represent an improvement in Windmills, for which a patent was granted to A. Lempecke, of Pleasant Mount, Pa., on the 8th, of last May.

The nature of the invention consists in the peculiar means employed for regulating the speed of the mill according to the velocity and power of the wind, by devices for feathering the sails or wind vanes; also a brake for stopping the mill.

The machinery is secured to a strong frame in the lower part of a building, and to a section hollow column, which sustains the shafting; the said hollow column being sustained by the four metal braces bolted to the cross sleepers of the under frame. A is a hollow shaft supported in the section hollow column by a collar, a'. In the interior of the hollow shaft, A, is the solid shaft, B', which is intended by gearing, or by pulleys and belting, to move the machinery in the building. This shaft has a bevel wheel, B, on its top, which gears into the bevel wheel, D, of the horizontal sail shaft, C. On the hollow shaft, at its shoulder, there spring out two arms, a, a, which carry the standards to support the machinery connected with the sail shaft. The shaft, C, revolves in bearings in the upper part of the standards of the arms, a, a. The hollow shaft, A, can turn round and carry the shaft, C, and its devices with it. To the outer end of shaft C, there is attached a hub, b, in which radial arms, c, c,

are secured, but allowed to turn partially. Fig. 2 is a section view of one of the arms, and a sail, d, connected at P. To these arms the sails or vanes, d, d, are connected and supported by spring rods, e, e. These rods with the arms, c, form the frames of the sails; these may be made of wood or sheet metal for small mills. D' is a sleeve on shaft C, and it can slide back and forth on the shaft, and its object is to regulate the sails. It has a circular rim, d', on its outer end, to which chains, e', are attached, and which connect the rods, e, of the sails, with the said sleeve. Two lever rods, k, are connected by pivots to the sliding sleeve, D', then pass horizontally to the hollow shaft, A, and through an opening in the flange on its top; then vertically downwards (one on each side) to a collar, a'', on the hollow column: this collar is connected by a chain, k', at m, to a lever, C', which has a weight, H, at its long end, and is attached at its inner end to a graduated post with holes in it, by a pin. As the sleeve, D, is connected by chains, e', to the sails, it follows that when this sleeve is drawn further back from the hub, b, the sails will become more stretched or extended to the wind, and vice versa. The weighted lever, G', regulates

## LEMPCKE'S PATENT WINDMILL.



this by its action on the lever rods, k. By shifting the lower end of the lever G', into any of the holes in the post at m, the amount of strain on the sleeve D' will be altered, and thus the pressure exerted on the sails to give them such exposure as may be desired, will be regulated. The pressure of the wind on the sails is thus regulated by the weighted lever; the same as the steam in a boiler by the safety valve.

E is a brake for stopping the mill. It is connected by a pivot at one end, to the sliding sleeve, D', and has its fulcrum at i', on a slide rest. It has a clasp or fork on its end, below the screw part of shaft C. F is a vibrating lever; it has a projection on its end on which the brake E rests, and its fulcrum is at g, on the arm, a. Its end at the hollow shaft is connected to a rod or lever (not shown) which extends downward and is connected by a flange at a''', to the forked lever L, one end of which is connected to the stirrup, N. By placing the foot on this stirrup, the end of lever F, next the hollow post, A, is drawn down; consequently, the projection on which the brake rests, is thrown up, and the clasp or fork of brake E, is forced against the screw part of

shaft, C, thus performing the office of a brake, and pushing forward the sliding sleeve to slacken chains e', and feather the sails; so as to stop the mill.

If designed for operating a pump, instead of having the gearing, D, B, to rotate the shaft B', the said shaft should be the connecting rod of the pump, attached by a crank to shaft C; so as to give a reciprocating motion to the pump rod. A screw turned by a hand wheel may be employed to keep the stirrup down when the mill is stopped. In localities (and, they are numerous in our country) where water is scarce, and steam power dear, windmills are very useful for driving various machines, and such as small grinding mills, pumps, saws, etc. Wherever a windmill can be employed more economically than hand or animal power, common sense suggests its adoption as soon as possible. A working model of this Windmill will be on exhibition at the Illinois and Michigan State Fairs, to be held on the first and second weeks of next month, (October.)

More information may be obtained respecting this windmill, by letter addressed to the inventor, Mr. Lempecke, or H. W. Brown, at Pleasant Mount, Pa.

