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D. H. Gilbert,

Water Wheel,

Patented Feb. 28, 1834.

Fig. 1.

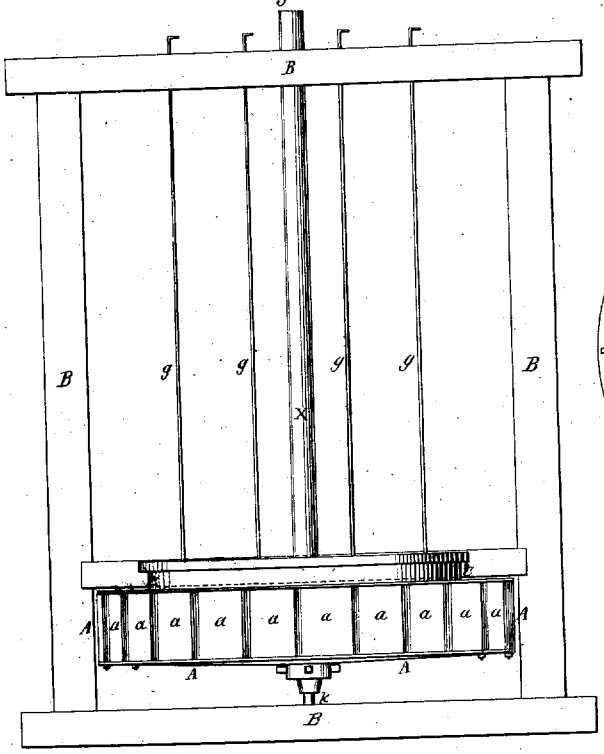


Fig. 3.

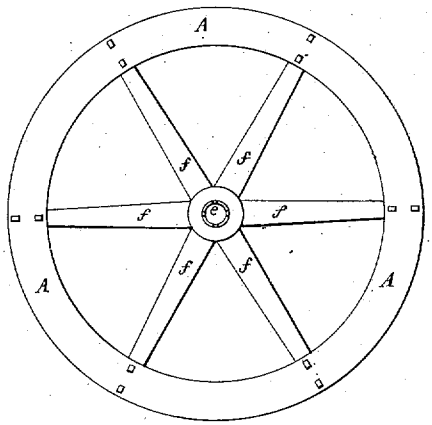


Fig. 4.

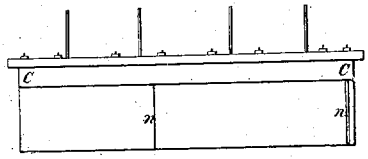


Fig. 2.

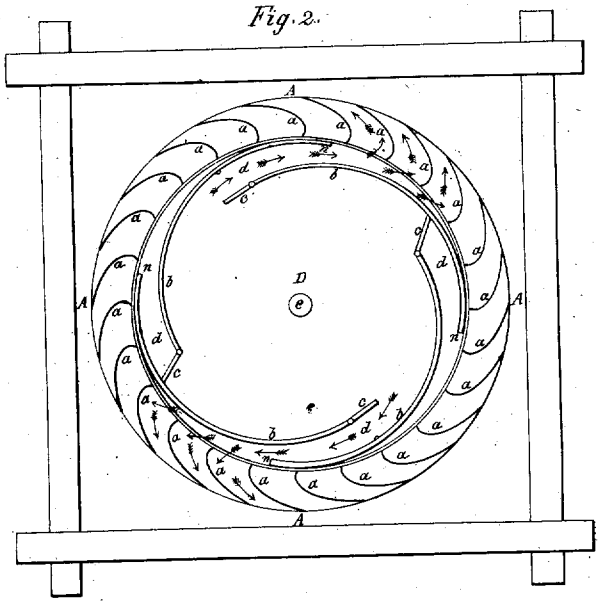
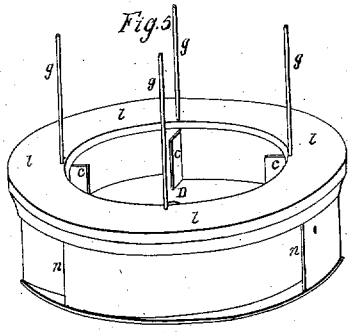


Fig. 5



N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

2/28/1834 8034X

Feb. 28, 1834. 147

David H. Gilbert of Dorchester Massachusetts
Letters Patent

The Schedule referred to in these Letters Patent and making part of the same, containing a description in the words of the said David H. Gilbert himself of his improvement in the mode of driving water wheels by water and in the structures for that purpose.

To all to whom these presents shall come: David H. Gilbert of Dorchester in the County of Norfolk and Commonwealth of Massachusetts millwright sends Greeting. Be it known that I the said Gilbert have invented made constructed and applied to use a new and useful improvement in the mode of driving Water wheels by water and in the structures for that purpose which invention and improvement I describe as follows: that is to say, for the better understanding thereof I refer to the drawings hereto annexed, which is to be taken and considered as a part of this specification.

Figure numbered one in the said drawing is intended to represent the water-wheel and the sistern within it and parts of the frame of the flume connected with it. A A A A designate the part of the figure intended to represent the water-wheel which revolves around the sistern upon a vertical axis which passes up thro the centre of the sistern. a. a. a. &c designate the parts intended to represent the buckets of the water-wheel. and designates the vertical axis before mentioned which turns on or gudgeon K. turns in a bearing in the work piece B. being part of the frame of the flume. B. B. B. B. designate the parts of the figure intended to represent the parts of the frame of the flume which is connected with the sistern. C. C. designate that part of the sistern which is above the water wheel, which curves inward around it.

Figure numbered two in the said drawing is intended to represent a horizontal section of the water wheel & of the sistern within it and around which it revolves on its vertical shaft passing up thro the centre of the said sistern at C. A A A A. in this figure designate that part of it intended to represent the lower rim of the water wheel which is also represented on the side in figure numbered three in said drawing. The arms designated by f. f. f. in said figure

8034X

and there are in the lower rim and on the side of some of the wheels. The upper rims of the wheels is not shown in the figures & numbered two, in order that the buckets may be exhibited which are between the upper and lower rim fixed and going round with them. These buckets are in the form of a canoe as represented in the figure numbered two which form is deemed best of the they may be made but this form or one like it or indeed of different shape to answer the purpose tolerably well. In a wheel of ten feet in diameter these buckets may be about nine inches apart but they may be farther or nearer from or to each other as occasion may require according to the size of the wheels and the quantity of water to be let upon it.

These buckets are supported by arms &c. in the third figure numbered three. b. b. b. b. represent the parts of the third figure numbered three intended to represent the side of the stone cistern around which the water wheel moves. These sides of the cistern are so contrived that parts of them from d. to m. lap over each other so as to leave apertures in the form of a canoe from the inside of the cistern at d. to the outside of the cistern at m. thro' which, when the gates c. c. c. c. are open the water in the cistern may issue and strike upon & into the buckets of the wheel. These apertures are to be made larger at the mouth in side of the cistern where the gates are, than at the outside at m. where the water is to issue upon the buckets of the wheel. and should gradually decrease in size from d. to m. as represented in the figure numbered three. They may be larger or smaller according to the size of the wheel and the power required. For a wheel ten feet in diameter with buckets fifteen inches in length and nine inches apart the apertures may be about eight inches wide at the mouth d. in the inside of the cistern and about four inches wide at the mouth m. outside of the cistern. But these apertures may be larger or smaller according to the size of the wheel the quantity of water to be let upon it and the power required.

The sides of the cistern are made to lap over each other; and they may be made to lap over as much as about two feet, as in 3 make the length of these apertures about two feet, but they may be made longer or shorter at discretion. For a wheel of the dimensions above described there may be from four to six apertures but the number may be more or less according to the size of the wheel the quantity

8034x

of water to be let upon it, and the frame opened. The breadth of a shoal of the above dimensions should be about fifteen inches apart. So that the buckets may be about fifteen inches long, and in this case the apertures may be about fifteen inches high & the same height with the length of the buckets of the wheel. S.S.S. designate the sides of the cistern. The cistern must correspond in number with the apertures of the hemispheres to supply and alter the power and speed of the wheel from time to time, but otherwise these gates may be dispensed with, and a main gate to the flume annexed with the cistern will answer very well. The level of the water thro' the apertures is intended to be represented by the arrows and fig. one numbered two. The top of the cistern should be about two inches above the highest part of the aperture about the bottom of the hemisphere & the bottom of the water wheel. The inner edges of the trunk of the water wheel and the sides of the cistern should be so adapted to each other that the wheel may freely turn in the cistern as nearly and closely to it as it can conveniently be made to do without friction. D. designates the bottom of the cistern, & is covered and containing the water to be let out thro' the apertures upon the buckets of the water wheel. The cistern may be stored with Wing's reaction wheel as represented at the end of the figures in the second volume of the Journal of the Franklin Institute at Page eighty seven. And the cover of this cistern is figured and figure numbered five in said drawing. The mill which covers over the top of the said apertures & casts from a sort of conical tube form the gate at the narrow mouth d. to the wider mouth N. as shewn in the figure being designated by L.L.L.L. The gate is represented as before by C.R.C.P. the letters of the gate by S.S.S.S. by the turning of which the gates are to be opened or shut, or partly opened or shut at pleasure. These gates however may be so adapted as to be opened by sliding in upon the wider mouth of the apertures. The flume is immediately above the cistern, and is adapted to it, so as to fit to it, water light, in order to prevent the escape of water.

The flume must be large enough to keep up the head of water required to act upon the wheel. For a wheel of the above dimensions, a flume about twelve feet wide and about fifteen feet in length will answer the purpose.

The buckets of the wheel should be of metal, as well as the arms and shaft and the whole wheel and cistern may also be of metal altho' wood will an-

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150.

the said purpose the Log of the said Land of Edward Stevens Sporting & [illegible] and of the flowage of Logs as described according to the power & [illegible] adjoining said Head of water. The said Canal to be of the dimensions above described, connections and combinations with the Gates constructed as above described, and drawn by the said Plot & Profiles above described & referred to Capable of Sporting advantageously with a small Head of water, and will operate with effect therein as much Back water as may be thereby created on said water, and requires Land for the purpose and as more fully appears by Plot & Profiles & Estimates thereto annexed.

That I claim as my invention and improvement in the Construction and use of said Canals as above described and with Gates constructed therein as above described, in connection and combination with each other for the said purpose of drawing Back water to drive Mills & machinery of any kind & description by water power.

In testimony that the above is a true specification of my invention & improvement I have hereto set my hand this 25th day of December in the Year of our Lord Eighteen Hundred and thirty three.

Witness } Edward H. Gilbert
John H. Parker }
Jas. Rand }

Drawing (1680 Words)

Dated February 25. 1834.