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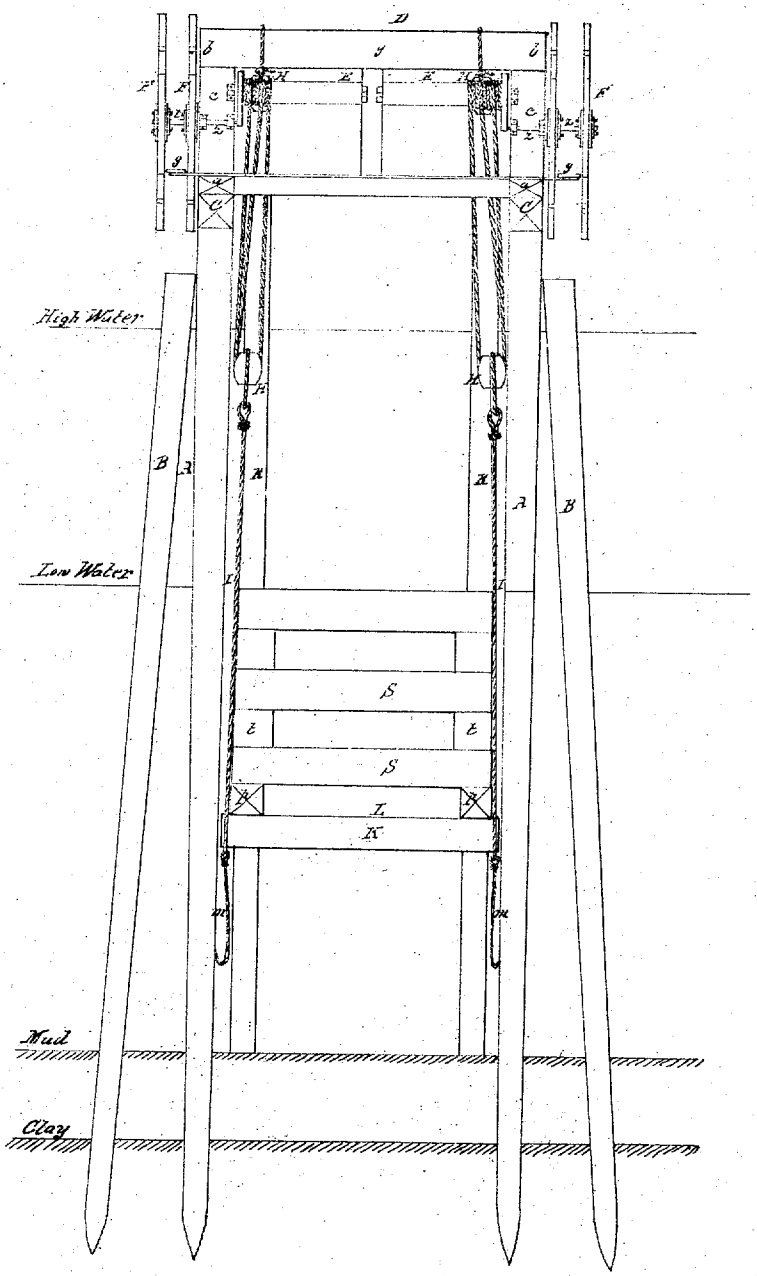
(2 Sheets) Sheet 1

H. R. May

Building Walls in deep Water

Patented Sept. 23d 1833

Fig. 1



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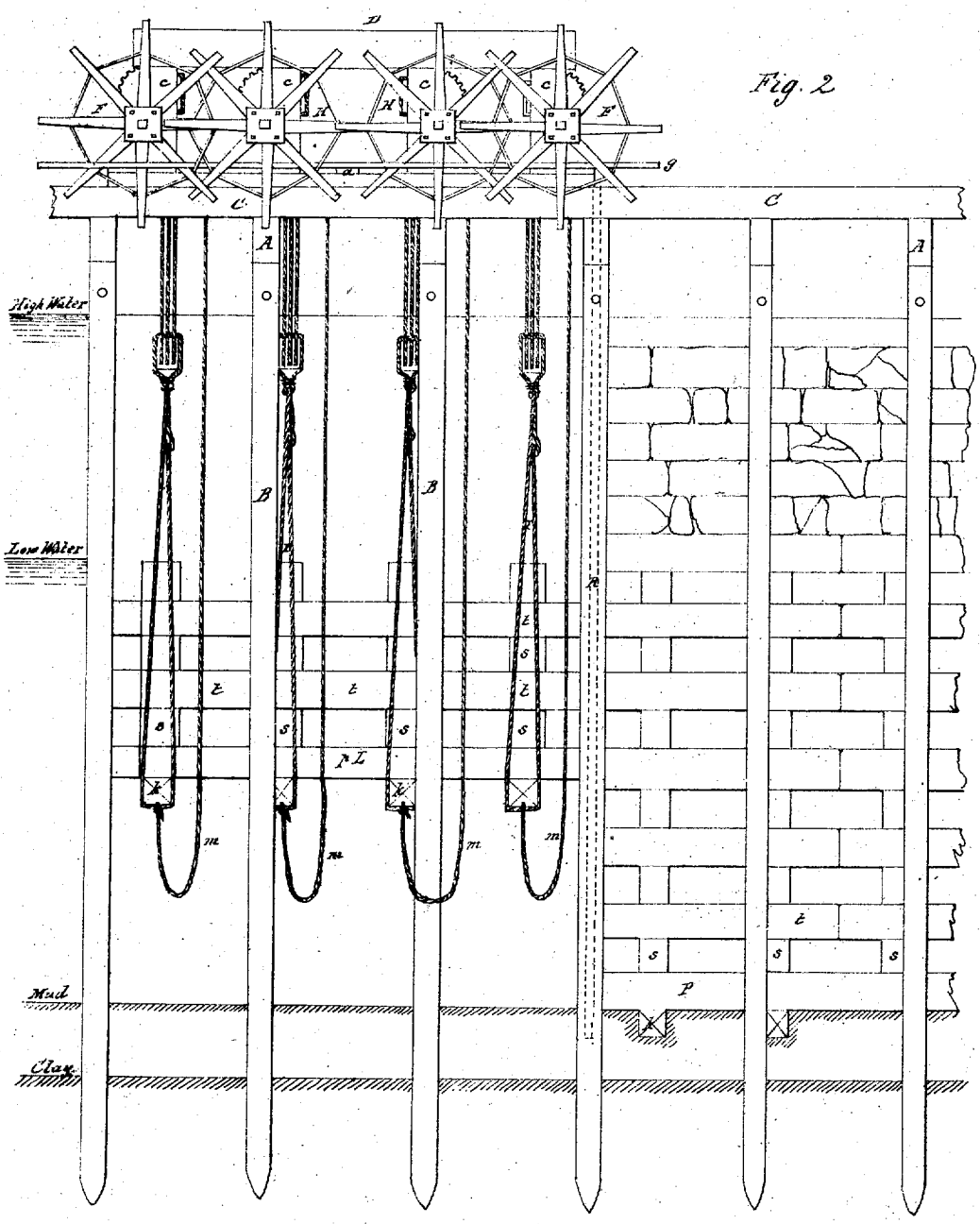
(2 Sheets Sheet 2.

H. R. May

Building Walls in deep Water

Patented Sept. 23d 1833

Fig. 2



9/23/1833 7778X

Henry H. May
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 Henry H. May himself of his Improvement in Bunking Mills or Deep Mills

Know all men by these Presents

That I Henry H. May of the City of Boston in the County of Suffolk & Commonwealth of Massachusetts Gentleman have invented made & applied to use a new & useful improvement in the mode of constructing tools & machinery in deep mines not known or used before this my invention which said invention & the principles thereof & the manner in which I have contemplated & applied the same & in what manner the same are to be used & put in operation are fully described in the following manner to wit 1st I cause to be sunk in the usual way or by any convenient means a row or line of pits, each pit being known as a suitable distance from the other, upon one side of the place in which the mill is to be erected or the machinery used. 2d I cause to be sunk another or second row of pits each one of which being known as the other side of the space aforesaid but opposite to & in a direction parallel to the first row or line of pits. 3d The two rows or lines of pits being placed as aforesaid on the two sides of said space opposite & parallel to each other, I strengthen & sustain them in their proper positions by timbering & planking them down longitudinally to any pits or any other mines in the usual manner & securing them on the inward sides of the pits & placing the timbers of the same at a suitable distance from the pits of each row or any other pits they being fastened by bolts or otherwise, across the top of the pits & the same on the inward sides of the pits in the manner being each of same row or line of pits known & named as aforesaid. The effect upon the right of an invention by any circumstances or circumstances of sufficient strength & dimensions to span from one row or line of pits to the other row of pits across the space

two land cafs, or parallel lines of pile. 5th I conduct a frame of
suitable form, size & materials containing windlafs with their
shafts, by which pinions & supporters of platforms for the workmen
& may be employed to work the apparatus & machinery.
6th I place the frame with its machinery & apparatus upon the cafs
or ends of parallel lines of pile so that the said frame with its machinery & apparatus
may be moved backwards & forwards, or along & upon said lines of pile as oc-
casion may require. The platforms or supporters for the workmen & the
purchase or aerial wheels of the windlafs being placed on the outward
sides or extending beyond the said two lines of piles & the other parts of
said machinery & apparatus being placed between the two lines of piles afore-
said. 7th I construct a platform of transverse & longitudinal timbers of
sufficient strength & dimensions placing the longitudinal timbers upon
the transverse ones at right angles with them within about four inches
of the ends of the same, & fasten them together with treenails or in any other
suitable way: the length of the transverse timbers being about equal to
the width of the spaces to be filled up between the rows of piles aforesaid;
& the longitudinal timbers extending as far as may be necessary for the con-
struction of any section of the wall or masonry to be built, against the
ends of said longitudinal timbers, I fasten planks perpendicularly with them
with spikes which serve as guides in its passage downwards for the several sections
of the wall or masonry to be built. 8th This platform I place be-
tween the two rows of piles & beneath the windlafs frame & in such a man-
ner that the transverse timbers shall be across & on the spaces to be built upon, while the longitudinal timbers extend along the said spaces in lines par-
allel to the two rows of piles aforesaid & here over the water of said spaces. be-
tween said rows of piles I sustain the aforesaid platform by means of
ropes or slings, the loops of which being placed around the outer sides of the
ends of said transverse timbers while the other ends of said ropes or slings
are fastened to the shafts belonging to the windlafs aforesaid.
9th The platform of transverse & longitudinal timbers being thus made,
placed & firmly held over the spaces to be filled up or wherein the wall
or masonry is to be constructed between the two parallel lines or rows of

piles as aforesaid. I place upon said platform alternate courses of stone in the form & manner of headers & stretchers with interstices between them the first course of headers being resting upon the longitudinal timbers directly over the transverse timbers of the platform & the first course of stretchers resting upon the ends of the headers directly over the longitudinal timbers, the second & remaining courses of headers & stretchers resting upon each other over the former courses & their interstices are left between the stones which after the platform has been lowered into its place are filled with rubble or large stones & as fast as the work progresses I lower the same into the water by means of the wind lasses & apparatus aforesaid. & this I continue to do until the platform rests on the bottom & the wall rises as high as low water mark & then the ropes or slings are drawn off of the ends of the transverse timbers by means of tripping ropes connected with said ropes or slings for the purpose, & the remaining or upper part of the wall is finished in the usual or any convenient way. 10th One station of the said wall being thus completed, I move the windlass frame with its apparatus along the side rails until it comes to the end of the platforms & section of wall already built, & proceed to construct, place & sustain another platform of transverse & longitudinal timbers as aforesaid, & this also is furnished with alternate courses of headers and stretchers as aforesaid. I lower this second platform down in the manner above described until it sinks to the bottom of said space to be filled up. the planks at the end of the first platform serving as a guide for the second & those of the second as a guide for the third & so on. And in this manner I construct platforms after platforms & section after section, until the entire wall or masonry upon the space between the two rows of piles aforesaid shall be done & completed. And I claim that the windlass frame, platform of transverse & longitudinal timbers with the other machinery. Apparatus & fixtures aforesaid, must be varied in number & dimensions according to the nature & extent of the space, on which the wall or masonry is to be constructed. The description above given may perhaps be better understood by reference to the drawing hereto annexed & the explanation of the same which is as follows to wit. Figure 1 exhibits an end view of

the two rows of piles. The semicircular platforms & machinery & appurtenances figured & being subservient to the same. AA. The rows of piles driven parallel to each other between which the wall is to be built with a space sufficient to allow the platforms I. I. to pass down between them unobstructed. BB. The apron sheets on the external sides of the piles AA which serve to strengthen and support them. CC. Are caps to the two rows of piles A. A. on which the frame D. is made to move forward & backward as occasioning may require. D. Is the frame of the principal machinery (viz) composed of two external longitudinal sills a.a. and four transverse sills g. g. g. g. suitably connected together by mortises & tenons & two internal upper longitudinal beams b. b. resting upon the tops of the posts c.c.c.c. & secured to them by mortises & tenons & the posts c.c.c.c. rest upon the external longitudinal sills a.a. perpendicularly & are secured to them by mortises & tenons y.y. are transverse arches resting on the tops of the posts c.c.c.c. & mortised & tenoned at their ends into the longitudinal beams b.b. The frame D. may be varied in its dimensions & in the number of its sills, beams & posts according to the circumstances of the wall to be constructed & other circumstances. EE. Are common windlasses having journals at each of their extremities which revolve in boxes affixed to post c.c. The outward ends of said windlasses have attached upon their journals which fit on wheels of proper size which are acted upon & turned round by the teeth of pinions fixed upon the ends of the shafts e.e. of the armed or spur wheels F.F. which shafts revolving in proper bearings affixed to the posts c.c.c.c. have upon their opposite ends a set of spur wheel arms by which the workmen govern the machinery. I use four spur wheels or armed wheels F.F. F.F. on each side of frame D. but every other one of the series is attached to a shaft the end of which extends beyond the external side of the frame D. a sufficient distance not to interfere in their movement with each other & to allow the workmen to pass forward & backward on a suspended platform g. placed on the space between the spur wheels nearest to the frame D. and those farthest from it. The number of the wheels & shafts with the gearing and arrangement may however be varied & the same purpose embraced. g. Is a platform suspended extending along the

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the outward sides of the frame D, in the spaces between the pinnacles which F.F. mount to the frame D, and the pinnacles which F.F. further from it, for such frames are designed for the workmen to stand upon while they are working a pinnacle which H.H. The common double pinnacles which are fixed, on the sides attached, or suspended from the ends of beams J.J. mentioned in the 13th section, in the usual way to the sides of the frame as before. One end of each rope is fixed to the wind lass, the other end of each rope is round it upon, a contrary course from the same, as the pinnacles which F.F. mount forward or backwards, but different blocks, or a greater or less number may be used if the gearing thereto makes it necessary for the same effect to follow. To the lower block of the pinnacle H.H. is attached a rope I. (call the sling rope) which passes around the outermost end of the transverse sill or timber K. of the platform L. and runs to and from the platform. At the innermost parts of the sling rope I. is attached a rope M. (call it a tripping rope) which runs when further to attach the sling rope I. from the transverse timber K. of the platform L. has been let down to it by a tackling or thereunto a clay on the bottom. When the sling rope I. cannot be thus attached, as sometimes is the case, from the end of the transverse timber K. by the tripping rope M. in consequence of some obstacle on the bottom near the end of said timber, the sling rope may be removed by unfastening the lashing which is purposely fixed for the purpose of thus drawing the sling rope from beneath the timber in a direction at right angles to it. There are each side of the frame D. four double blocks, with suitable sling & tripping ropes, as above described, with the gearing & arrangement of apparatus, but the number of such blocks & the gearing & arrangement may be varied & the same effect accomplished. L. is the platform on which the workmen are to be placed. It is composed of longitudinal timbers p.p.p.p. planed parallel to each other, & transverse timbers a.a.a.a. mortised into the longitudinal timbers and bolted, or otherwise suitably connected to them. The length of the transverse timbers is greater than the width of the platform by the length of the longitudinal timbers at the ends of the platform, allowing for the projection of the ends of the longitudinal timbers beyond the transverse timbers. R.R. planks

call the guiding planks, across to succeed each end of the longitudinal timbers F.F. (suspended similar to them, which serves as a guide to the inward bottom of the wall or masonry to be built. Every thing being constructed, fixed and arranged as herein before described, I build my wall or masonry as follows to wit; I place a course of stones S.S.S.S. so that they may rest upon the longitudinal timbers F.F. of the platform D. directly on the transverse timbers a, a, a, a of the same platform. Then I place a course of stretchers C, C, so that they may rest upon the ends of the stones S.S.S.S. directly on the longitudinal timbers F.F. & then I place another course of headers as before & then another course of stretchers; each row of headers & stretchers resting upon each other, on the preceeding course; placing the materials in such a manner that interstices are left between them which interstices are after the platform I. has been lowered into its place, filled up with rubble stone, & other materials suitable for the purpose. As the work progresses the platform I. is lowered from time to time by unbanding planks in the usual manner & lowering the spurs as shewn I.I.I. &c & this is continued to be done till the platform I. with the wall or masonry as above described is constructed upon it, descends to the bottom, or fixes it bed or bottom in the mud or clay & the wall or masonry reaches as high as low water mark. I then detatch the sling ropes H. from the ends of the transverse timbers K.K. by means of the tripping apparatus, & move the frame D. with its machinery, apparatus, & tackle, along the ways C.C. till it is even with the guiding planks R.R. & proceed to construct another platform I. as before described for another section of the wall or masonry to be built, which I build & construct as aforesaid. And so on till the whole of the contemplated wall or masonry is completed in height as far as low water mark, & afterwards I finish it in the usual manner. And although I may have herein described machinery & parts of machinery which have been known and used before this my invention, yet I hereby distinctly explicitly & claim that which I hereby claimed by me, as my invention is the mode herein before described of constructing walls & masonry in deep water & the combination & arrangement of the machinery & apparatus, as herein by me particularly

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for carrying the same into effect.

In testimony that the foregoing is a true specification of my said improvement in the mode of constructing walls of masonry in conjunction with the mechanical contrivances & mode of operating thereon as herein described, I have hereto set my hand this 2d day of July in the year of our Lord eighteen hundred & forty three.

Witnesses
Robert H. Eddy
John McCullum

Henry Ellis May. Seal.

(In portfolio)

2800 words