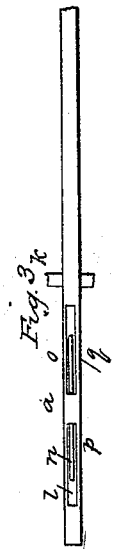
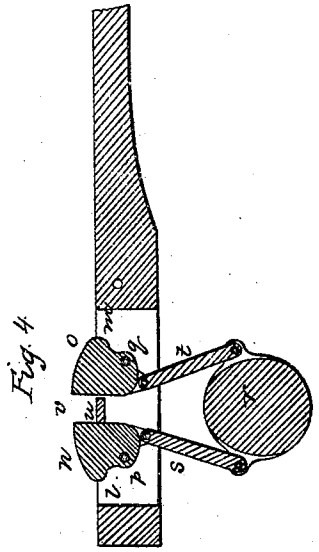
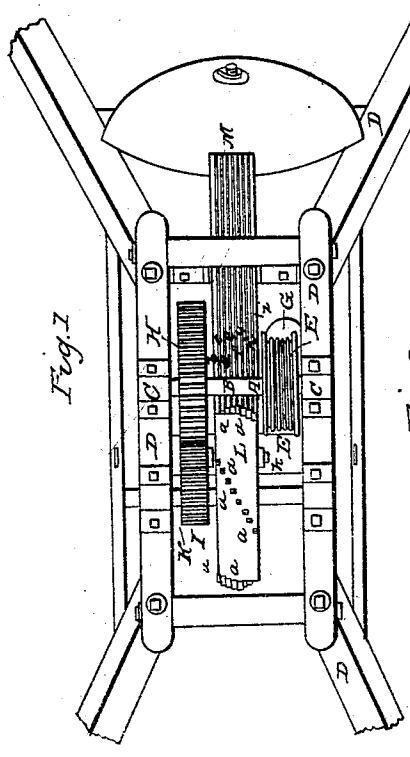
M. R. FLETCHER.

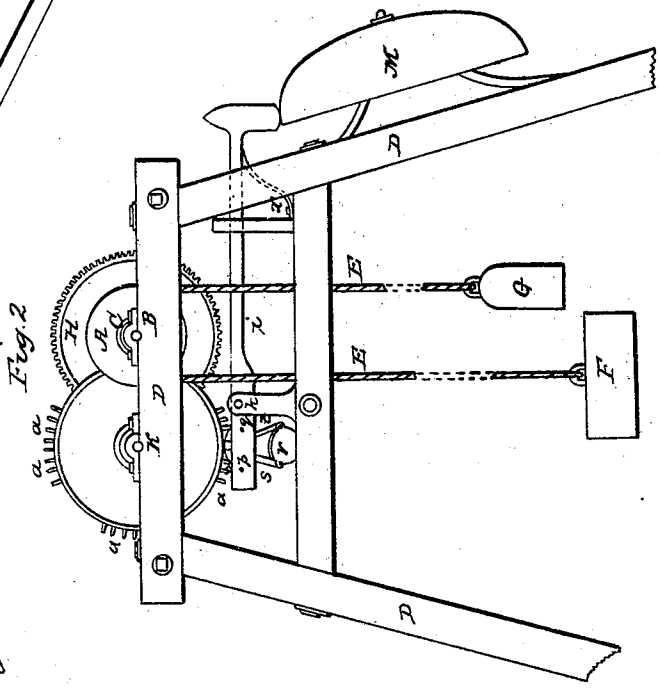
Tide Alarm.

No. 13,126. Patented June 26, 1855.









N. PETERS. Photo-Lithographer. Washington. D. C.

UNITED STATES PATENT OFFICE.

M. R. FLETCHER, OF CONCORD, NEW HAMPSHIRE.

TIDAL ALARM APPARATUS.

Specification of Letters Patent No. 13,126, dated June 26, 1855.

To all whom it may concern:

Be it known that I, MOORE RUSSELL FLETCHER, late of Concord, in the county of Merrimack and State of New Hampshire, have invented a new or Improved Tidal Alarm Apparatus; and I do hereby declare that the same is fully described and represented in the following specification and the accompanying drawings, letters, figures, and references thereof.

Of the said drawings Figure 1 denotes a top view of my said apparatus or machine. Fig. 2 is a side elevation of it. Fig. 3, is a top view, and Fig. 4 a vertical and longitudinal section of the rear part of one of the striking hammers to be hereinafter described.

In the said drawings A, denotes a barrel or drum fixed on a horizontal shaft B, that is made to revolve in boxes *c*, *c*, fastened on the upper part of a strong frame D. Around the barrel A, a chain or rope E, is wound, it having on one end a large float F, which is placed in the water of the ocean when the machine is in use. On the opposite end of the rope there is a lighter weight G. The weight of the float should be more than twice that of the weight G, and that of the said weight G, sufficient to put the machine in operation when the float is being raised by the tide when on the rise.

Fixed on the shaft B, is a spur gear H, which is made to engage with a small gear I, fixed on another shaft K. This shaft carries the striking barrel or cylinder L from whose periphery ranges or series of teeth or pallets *a*, *a*, *a*, are made to extend.

Below the cylinder L, is a set of eight or any other suitable number of hammers or hammer levers *b*, *c*, *d*, *e*, *f*, *g*, *h*, *i*, all of which are supported on one common fulcrum or pin *k*. The said levers just in rear of their heads rest upon springs *x* which keep the heads just above and from resting upon a bell M, arranged as seen in the drawings. The lever heads are thus kept from contact with the bell when at rest, but are permitted to strike it at the proper time. The rear end of each of the hammers or levers *b*, *c*, *d*, is provided with two vertical slots or mortises *l*, *m*, made down through it, one of them being a little in advance of the other. Each one of these mortises contain a tripping cam *n*, or *o*, which is shaped and disposed in it and made to turn on a fulcrum or pin *p*, or *q*, as seen in Fig. 4. A weight *r* is suspended to both the tripping cams by links or rods *s*, *t*, which are jointed to the cams between their two fulcra the weight serving to depress them against the division or partition *u*, between the two mortises. In moving over and against the two cams any pallet of the cylinder L, will press down one of the cams and lift up and pass by the other in whatever direction the cylinder may be rotated either forward or backward. In pressing down a cam the pallet will create a depression of the rear arm of the hammer lever of the said cam, and thereby cause its hammer to be raised off its spring and some distance above the bell. The moment the pallet passes by the cam and into the space *v*, between the two cams, the lever will be set free from the pressure of the pallet, and its hammer will fall down on or strike the bell. Immediately after the pallet will come into contact with the next cam and lift it until it passes by it, when such cam will be caused by the weight *r* to fall back to its place.

The cylinder L, may be provided with any number of sets of pallets, there being the same number of hammers as there are pallets in each set, being so arranged as to successively actuate the levers or hammers. Some of the pallets may be arranged nearer together than the others in order to produce two blows with a less interval of time between them. And when such a disposition of the pallets is made at or near one end of the set, they may indicate by the shorter interval of sound preceding or succeeding the other blows on the bell the ebb or flood of the tide, while the whole number of blows will serve to indicate the place where the alarm bell apparatus is situated. Thus if there were six pallets to each set, the six blows might signify the word Boston. If eight blows the word Portland, so that a mariner in approaching the bell apparatus whether in a fog or not would know by the number of blows struck the place of his vessel.

The apparatus is intended to be operated by the rise and fall of the tide. When the tide falls the float F, will move downward with it, and turn the barrel A, which will put in motion the striking apparatus and wind up or elevate the weight G. During the rise of the tide the weight G, will perform the office of putting the barrel A, in motion in a contrary direction and of course

the cylinder L, will also be moved in the opposite direction.

For the protection of this apparatus against the effects of undulations of the waves, it should be placed within the well of a hollow pier, or loaded blockhouse, sunk into the water at the desired locality, and receiving the water at the bottom, and projecting above the height of the waves; or it may be within a cove from which the wave motion may be effectually broken by a breastwork, or breakwater; or it may be within a well upon the shore, at the bottom of which the water of the ocean is permitted to enter, and retire through a blind ditch or culvert, composed of stone loosely compacted so as to admit the passage of the water during the rise and fall of the tide, unaffected by the motion of the waves.

The speed of the wheels employed in the apparatus is to be varied and regulated at pleasure, by the variation of their diameters, so as to correspond with the varying elevation or fall, or consequent speed of the rise and fall of the tides in different latitudes, so as to increase the revolutions of the wheels to the striking apparatus where the motion of the tide is sluggish, and diminish them where it is active or rapid.

I do not claim a series of levers or hammers applied to a bell, nor a cylinder with tappets or pallets to operate such levers, and cause them to be successively raised above and allowed to fall down upon a bell or a series of bells, but

What I claim as my invention is—

The improvement by which the bell is sounded both at rise and fall of the tide; meaning to claim the two tripping cams *n*, *o*, applied to each hammer, in combination with the float F, and weight G, as applied to the barrel A, and made to put in revolution the said barrel as described and thereby cause the tappet cylinder to actuate the hammers either during the rise or fall of the tide as hereinbefore explained.

In testimony whereof I have hereunto set my signature this fourteenth day of January, A. D. 1853.

MOORE RUSSELL FLETCHER.

Witnesses:
R. H. EDDY,
CALEB EDDY.