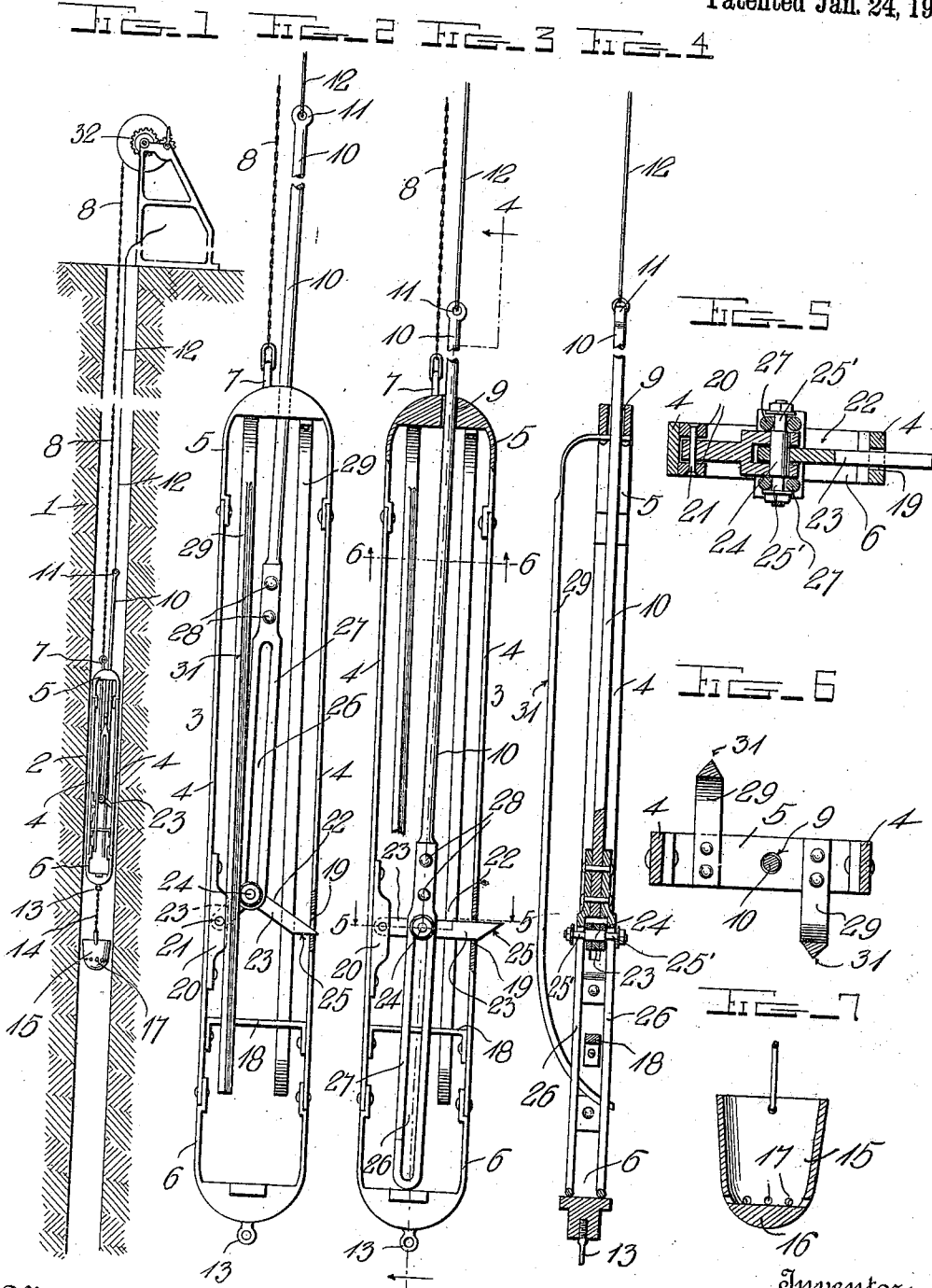


W. & F. CENTALA.
PROSPECTING DEVICE.
APPLICATION FILED JUNE 27, 1910.

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Patented Jan. 24, 1911.



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UNITED STATES PATENT OFFICE.

WATSON CENTALA AND FRANK CENTALA, OF METZ, MICHIGAN.

PROSPECTING DEVICE.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that we, WATSON CENTALA and FRANK CENTALA, citizens of the United States, residing at Metz, in the county of Presque Isle and State of Michigan, have invented certain new and useful Improvements in a Prospecting Device; and we do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to improvements in prospecting devices.

The object of our invention is to provide an instrument which may be readily and easily inserted into a well or shaft of any kind, and drilled or cut by any suitable means, to allow prospectors to obtain specimens or samples of the earth, rock, ore, etc., through which the shaft or well passes.

Another object of our invention is to provide an instrument of this character by means of which the ore, rock, or like mineral at any desired depth can be accurately and easily obtained.

A further object of our invention is to provide a compact, efficient, and practical instrument of this character which may be economically constructed and cannot be easily broken or deranged.

With these and other objects in view, the invention consists of certain novel features of construction, combination and arrangement of parts as will be more fully described and particularly pointed out in the appended claims.

In the accompanying drawings:—Figure 1 is a diagrammatic view indicating the application of my improved prospecting device; Fig. 2 is a side elevation of the prospecting device detached; Fig. 3 is a similar view, partly broken away showing the bit arranged to cut. Fig. 4 is a sectional elevation at right angles to Figs. 2 and 3. Fig. 5 is a horizontal section on the line 5—5, of Fig. 3. Fig. 6 is a horizontal section on the line 6—6 of Fig. 3. Fig. 7 is a detail section of the bucket.

The same reference characters indicate corresponding parts throughout the several views.

Referring particularly to the drawings, the numeral 1 represents a shaft or well suitably drilled by means of a churn drill, diamond drill, or any other suitable means, and 2 our improved prospecting device,

adapted to be lowered to any desired depth within said shaft to pick or chip portions of the rock, ore, or other material surrounding the shaft at that particular depth, and to catch and retain the broken portions to be conveyed with the instrument to the surface of the ground.

It is to be understood that our improved prospecting device may be operated at any desired or predetermined depth and the material chipped or broken off from the sides of the shaft at any particular point may be obtained independently of other material or specimens from different depths and the samples of the ore thus obtained from different strata may be independently catalogued or assayed at the will of the operator.

Our improved prospecting device is preferably constructed of a frame work 3, of a width sufficient to allow it to be easily inserted within the opening or shaft to be examined and preferably constructed of heavy metallic bars, as herein shown being composed of spaced side bars 4 and the upper and lower connecting bars or yokes 5 and 6 respectively. The upper yoke or connecting bar 5 is preferably provided with an eye 7 or other suitable connecting means whereby it may be secured to a cable, rope, chain, or other flexible element 8, the function of which will be hereinafter set forth. Adjacent the eye or other connecting link 7 the upper yoke 5 is provided with a guide aperture or opening 9, through which is adapted to loosely reciprocate an operating rod or hammer 10 which is preferably provided at its upper extremity with an eye or hook 11 by means of which it may be suitably connected to a light rope, chain or like flexible element 12. The lower yoke or connecting bar 6 is preferably provided with a hook, eye bolt 13, or other suitable connecting device, to which may be detachably connected the suspending cord or chain 14 adapted to support a bucket, pail 15, or like receptacle, into which the broken or chipped portions of the ore, rock, or other material will fall. This receptacle or bucket 15 is herein shown and preferably constructed with a weighted bottom portion 16, in which bucket is preferably formed suitable apertures 17, to allow the drainage of water or other liquid from the bucket and also permit the lowering of the receptacle and prospecting instrument beneath the surface of

any water or other liquid encountered within the shaft or well.

Between the side bars 4 of the frame 3 of our prospecting device is preferably disposed a cross bar 18 and just above said cross bar is a slot 19, as clearly shown in Fig. 3. To the inner face of one of the side bars 4 are secured a pair of apertured bearing brackets or lugs 20, in which is mounted a pivot pin 21 suitably fixed to a cross drill 22. The cross drill 22 is preferably composed of a plurality of members 23 which are pivotally connected at their inner ends as indicated at 24.

In the form of the invention illustrated, one member is mounted on the pivot pin 21 while the other member projects through the slot 19 in the opposite side bar and has its free end beveled, as shown at 25, to constitute a bit which will break or chip off the rock.

The pivot pin 24, by means of which the members 23 are connected to each other is preferably extended laterally at each side, as indicated at 25', and the projecting ends of said pin are adapted to extend through the slots 26 in a pair of parallel operating links or hammers 27, which are suitably secured at their upper ends to the lower extremity of the operating rod or hammer 10, as by the bolts 28.

To prevent the rotation of the frame of the prospecting instrument within the shaft or well, we provide a pair of side springs 29 which are preferably secured at their upper ends to the upper yoke or connecting bar 5, and extend therefrom substantially parallel to the side bars 4 of the frame. The lower ends of the side springs 29, are preferably curved inwardly, as shown, to allow the prospecting instrument to enter the well or shaft. It will be evident that by thus preventing the rotation of the frame 3 of our prospecting instrument, we obviate all danger of the twisting or tangling of the flexible cables or like elements 8 and 12 respectively and also maintain the operating rod or hammer 10 and the cross drill 23 in operative position. To avoid excessive friction of the side springs 29 with the sides of the well or shaft, the outer faces of said springs may be inclined or sharpened, as indicated at 31.

In the operation of our improved prospecting device, we lower the frame 2 and the attached mechanism by means of the supporting rope or chain 8 to any desired or predetermined depth, the distance below the surface of the ground being easily determined by the measurement of the suspending rope, the connecting pivot pin 24 of the cross drill being drawn up so that the point 25 of the drill will not extend beyond the side bars of the frame. When the instrument has reached the desired

depth or strata, the operating rope, chain, or other flexible element 12 is drawn up as far as possible and then released, allowing the operating rod or hammer 10 and the operating links 27 to fall suddenly, the upper ends of said links impacting against the pivot pin 24 connecting the members of the drill and throwing the bit outwardly to engage the side of the well or shaft. The heavy operating rod and links are again drawn up as far as possible and then lowered as shown, to again force the sharpened edge of the bit or blade into engagement with the side of the well. This is repeated as long as desired, the quick retraction of the chipping blade and its sudden contact with the side of the well serving to slowly move the frame of the prospecting instrument to allow the blade to engage the side of the well at different points, the side springs 29 meanwhile serving to steady the frame and hold it at the desired depth. It has been found that the best results may be obtained by first operating the hammer and cross drill to chip the rock or other material as much as possible and then lowering the frame to permit the bit to engage the rock about one inch below the plane of its former engagement, whereupon when the drill is again actuated, the rock or earth will be broken off in much larger pieces and fall into the receptacle or bucket 15 suspended from the lower yoke of the frame. When the instrument has been operated as long as desired for this depth, it is elevated to the surface of the ground in any suitable manner, a windlass, as 32, being preferably provided adjacent the upper extremity of the shaft or well 1, upon which the supporting cable or chain is wound. The ore in the receptacle 15 is then removed and dumped at any desired point and the instrument lowered to another depth to obtain specimens of the ore in the different strata traversed by the well or shaft.

It will be apparent from the above description, that we have provided a simple and practical prospecting device and one that can be easily lowered and lifted within any previously drilled shaft or well and by means of which the ore, rock, or other material at any or all planes within the shaft may be accurately obtained and examined separately and independently. It will be apparent that our improved prospecting device will be applicable for many purposes and functions, and while described herein as adapted for use within a well or shaft, it is to be understood that we do not intend to limit its use thereto.

From the foregoing description taken in connection with the accompanying drawings, the construction and operation of the invention will be readily understood without requiring a more extended explanation.

Various changes in the form, proportion and the minor details of construction may be resorted to without departing from the principle or sacrificing any of the advantages of this invention as defined in the appended claims.

Having described our invention, we claim:—

1. A prospecting device comprising a frame adapted to be inserted within a shaft, a chipping blade carried by said frame, and a receptacle supported from said frame.

2. A prospecting device comprising a frame, means for lowering or elevating it within a shaft, a cross drill carried by said frame, means for operating said cross drill, and a receptacle supported from said frame.

3. A prospecting device comprising a frame, means for lowering or elevating the frame within a shaft, means to prevent the rotation of said frame, a cross drill carried by said frame, means for operating the cross drill, and a receptacle suspended from the frame.

4. A prospecting device comprising a frame, means for lowering or elevating the frame within the shaft, a pivotally mounted chipping blade carried by the frame, means for projecting and retracting said blade, and means to receive the material chipped from the sides of said shaft.

5. A prospecting device of the character described comprising a frame adapted to be lowered within a shaft, said frame having side bars connected at their ends to each other and provided with a slot intermediate said ends, a pivotally mounted chipping blade adapted to project through said slot, means for projecting and retracting said blade, and a receptacle supported from the frame, substantially as described.

6. A prospecting device of the character described comprising a frame composed of side bars and upper and lower connecting yokes, means secured to the upper yoke for lowering or elevating the frame within the shaft, a reciprocatory operating rod adapted to be guided in its movement by said upper yoke, a pivotally mounted chipping blade carried by said frame and adapted to be engaged by the operating rod, means for reciprocating said rod from the surface of the

ground, and means for catching the material chipped from the sides of the shaft.

7. A prospecting device of the character described comprising a frame having side bars and upper and lower connecting yokes, means for lowering or elevating said frame within a shaft, a reciprocatory operating rod guided in its movement by the upper yoke, means for reciprocating said rod, spaced slotted links secured to the lower extremity of said rod, a pair of chipping blade members carried by said frame, an elongated pin adapted to pivotally connect said members to each other, the extended ends of said pin projecting through the slots of said links, and a receptacle supported from the frame.

8. A prospecting device of the character described comprising a frame having side bars and upper and lower connecting yokes, means for lowering or elevating said frame within a shaft, a reciprocatory operating rod guided in its movement by the upper yoke, means for reciprocating said rod, spaced slotted links secured to the lower extremity of said rod, a pair of chipping blade members carried by said frame, an elongated pin adapted to pivotally connect said members to each other, the extended ends of said pin projecting through the slots of said links, and a pair of side springs adapted to prevent the rotation of the frame within the shaft.

9. A prospecting device of the character described comprising a frame, means for lowering and elevating the frame within a shaft, a pivotally mounted chipping blade carried by the frame, a reciprocatory operating rod adapted to engage said chipping blade, means for reciprocating said operating rod, spring members carried by the frame to prevent the rotation of the frame within the shaft, and means suspended from the frame to catch the chipped material.

In testimony whereof we have hereunto set our hands in presence of two subscribing witnesses.

WATSON CENTALA.
FRANK CENTALA.

Witnesses:

GEO. CICERO,
THEODORE S. HARDIES.