

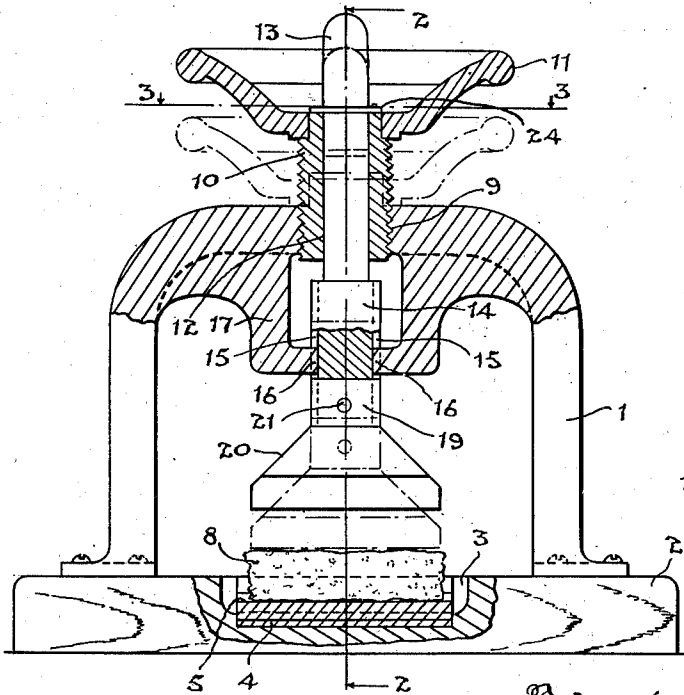
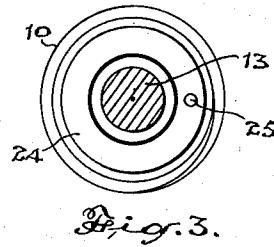
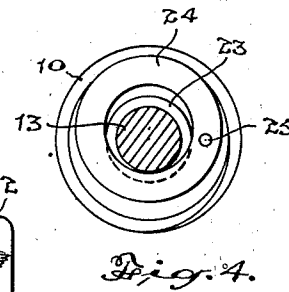
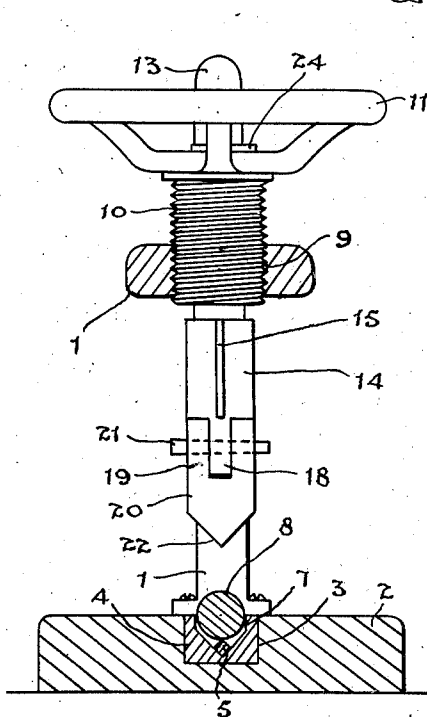
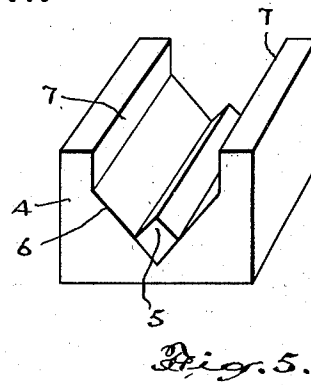
Aug. 26, 1947.

J. G. DICKENSON

2,426,344

DEVICE FOR SPLITTING DIAMOND DRILL CORES

Filed Aug. 13, 1945



Inventor.

J. G. Dickenson
by
H. G. Dickenson
att'y.

UNITED STATES PATENT OFFICE

2,426,344

DEVICE FOR SPLITTING DIAMOND DRILL
CORES

John G. Dickenson, Toronto, Ontario, Canada

Application August 13, 1945, Serial No. 610,596

6 Claims. (Cl. 125—23)

1

In the work of making mineral surveys and explorations diamond drilling performs a very important role. Diamond drill cores are frequently sent to distant points for assay or for examination and it is important that a tangible record of the cores sent from the source should be kept and it is desirable to maintain a section of the core and for this purpose it is desirable to split the core samples longitudinally so that a complete half section of a core may be retained while the other half may be sent for examination and analysis.

The principal object of this invention is to provide a very simple and effective tool by means of which the core sections may be readily split longitudinally.

The principal feature of the invention consists in the novel construction and arrangement of a bottom die presenting a longitudinal cutting or fracturing edge associated with means for holding the core in position in contact with said cutting or splitting edge, a splitting tool being supported above the core in a supporting frame and such tool being freely reciprocable and adapted to be struck a sharp blow to effect the splitting of the core.

In the accompanying drawings

Figure 1 is a part elevation and part sectional view of my improved core-splitting device.

Figure 2 is a part vertical mid-section and part elevational view taken through the line 2—2 of Figure 1.

Figure 3 is a plan section of the adjusting wheel and centre spindle taken on the line 3—3 of Figure 1 showing the lock washer for holding the splitting tool spindle in its released position.

Figure 4 is a view similar to Figure 3 showing the lock washer in the locking position.

Figure 5 is an enlarged perspective detail of the preferred form of bottom die block.

In the construction of device herein shown an arched frame structure 1 is mounted on a suitable base block 2 which is preferably formed of a piece of hard wood suitably oiled. This base block is formed with a rectangular recess 3 therein in which the bottom die block 4 is seated. The die block 4 is preferably formed of a piece of hardened steel having a longitudinal recess extending from end-to-end in the top thereof.

In the centre of the bottom of this recess is formed a wedge-shaped rib 5, from the bottom of which upwardly sloping side walls 6 extend to the parallel walls 7 which are spaced apart a distance slightly greater than the diameter of the drill core to be split.

2

When the core 8 is placed within the block it rests centrally on the apex of the rib 5 and is held in a central position by the engaging side walls 7 and is thus supported in a position to receive an impact blow from the top which will tend to fracture the core longitudinally along the line of the apex of the rib 5.

The rib 5 may be advantageously formed of a bar of hardened steel or other suitable material which may be turned in its socket in the block to present four separate cutting edges.

The upper arched portion of the frame 1 is provided with a central threaded orifice 9 in which is rotatably mounted a threaded bushing 10 which is provided with a suitable hand wheel 11 to enable the bushing to be rotated to be moved quickly upwardly and downwardly.

The bushing 10 is formed with a central cylindrical orifice 12 in which is slidably mounted a shank 13 preferably formed with a rounded top.

Mounted on the lower end of the shank 13 or forming part thereof is an enlarged cylindrical portion 14 formed with a pair of longitudinal keyways 15. These keyways are engaged by key extensions 16 of a boss 17 extending downwardly from the arched frame below the threaded bushing.

The bottom end of the block 14 is formed with a central tongue 18 and on this tongue is mounted the jaw-shaped portion 19 of a core splitting tool 20, being secured in position by a suitable taper pin 21 or other device.

The bottom V-shaped cutting edge 22 of the splitting tool is extended longitudinally to a length corresponding to the length of the block 4. This tool 20 is moved upwardly and downwardly by operating the hand wheel 11 to rotate the bushing 10 in the threaded orifice 9 of the frame. By turning the hand wheel the splitting tool is raised to permit the insertion of the core 8 into the block 4. The rotation of the hand wheel is then reversed which lowers the splitting block downwardly until its cutting edge engages the top of the core, which edge extends the full length of the section of the core to be split.

When the splitting tool is thus positioned the rounded upper end of the shank 13 may be struck a sharp blow with a hammer, thus imparting an impact blow to the splitting edge 22 of the tool 20 and co-operating with the bevelled rib 5 in the block 4 the sharp impact causes a clean fracture throughout the length of the piece of core placed in the block 4.

The shank 13 is formed with an annular groove 23 arranged adjacent to its upper end and a flat

3

disc washer 24, which is pivotally secured by a pin 25 to the upper end of the bushing 10, may be swung into the groove 23 when the splitting block 20 will have been raised by the hand of the operator following the splitting operation. The rotation of the bushing then raises the block out of position and holds it clear from the lower block so that the operator will not have to hold the splitting block in the upward position.

Then when the bushing is rotated in the opposite direction it lowers the splitting block as described.

When the tool has been brought into contact with the next core to be split the washer is swung on its pivot to a position to clear the groove 23 in the shank, thus allowing the shank to move freely downward when struck by a hammer.

The device is very simple in its construction but it has been proved to be very effective in operation and enables an accurate splitting of diamond drill core sections so that a sample of each section may be retained while the other is used for examination purposes.

What I claim as my invention is:

1. A device for splitting diamond drill cores, comprising a base, an anvil block having a recess adapted to retain a length of said core mounted in said base, a longitudinal splitting rib arranged in the bottom of said recess, a frame mounted on said base extending over said anvil block, a member slidably mounted in said frame, and a bevelled core-splitting tool secured to said slidable member.

2. A device as claimed in claim 1, in which the recess in said anvil block is formed with substantially parallel longitudinal side walls and inwardly bevelled walls extending downwardly from the bottom of the side walls to the longitudinal splitting rib which is formed with bevelled walls extending upwardly and meeting in a sharp apex.

3. A device as claimed in claim 1, in which the frame extending over the anvil base is provided

4

with a threaded orifice, and a threaded bushing is rotatable in said orifice in which the slidable member is guided to bring the tool into contact with the core to be split in alignment with the anvil member, means for locking said slidable member to the bushing, and means for rotating said bushing.

4. A device for splitting diamond drill cores, comprising an anvil base adapted to hold a core section, a longitudinal splitting edge mounted in said base, a frame extending over said base, a bushing rotatably threaded in said frame, a shank slidable and non-rotatable in said bushing and adapted to be temporarily secured therein for adjustment, a splitting block secured to said shank with its cutting edge parallel with the cutting edge of the anvil, and a hand wheel secured to said bushing to effect rotation thereof to bring the cutting edge of said splitting block into engagement with said core section.

5. A device as claimed in claim 4, in which the slidable shank is formed with longitudinal slidable guides to prevent the shank from turning when being reciprocated in said bushing.

6. A device as claimed in claim 4, in which the slidable shank is provided with an annular groove and a washer is pivotally mounted on the end of the bushing to be moved into and out of engagement with the groove in said shank.

JOHN G. DICKENSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
205,989	Andrews	July 16, 1878

FOREIGN PATENTS

Number	Country	Date
756,210	France	Sept. 18, 1933