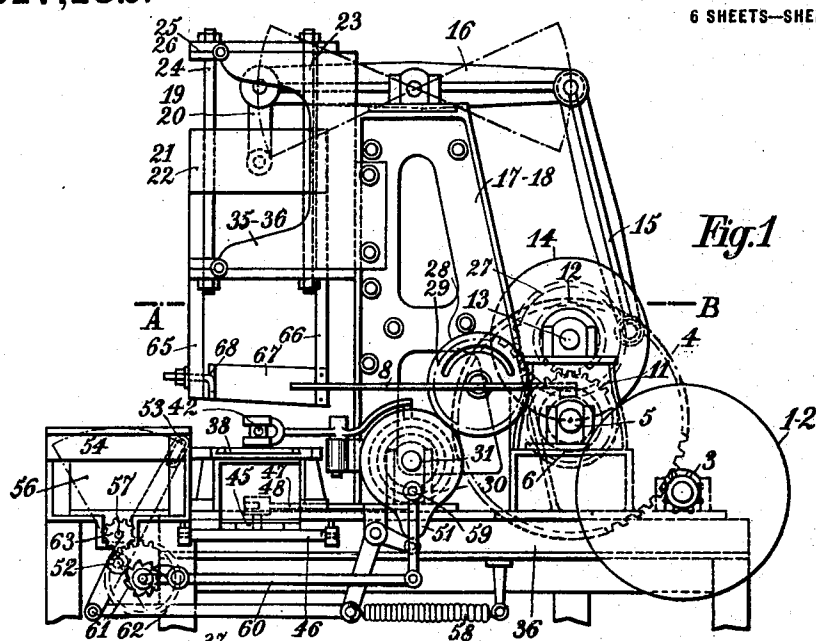
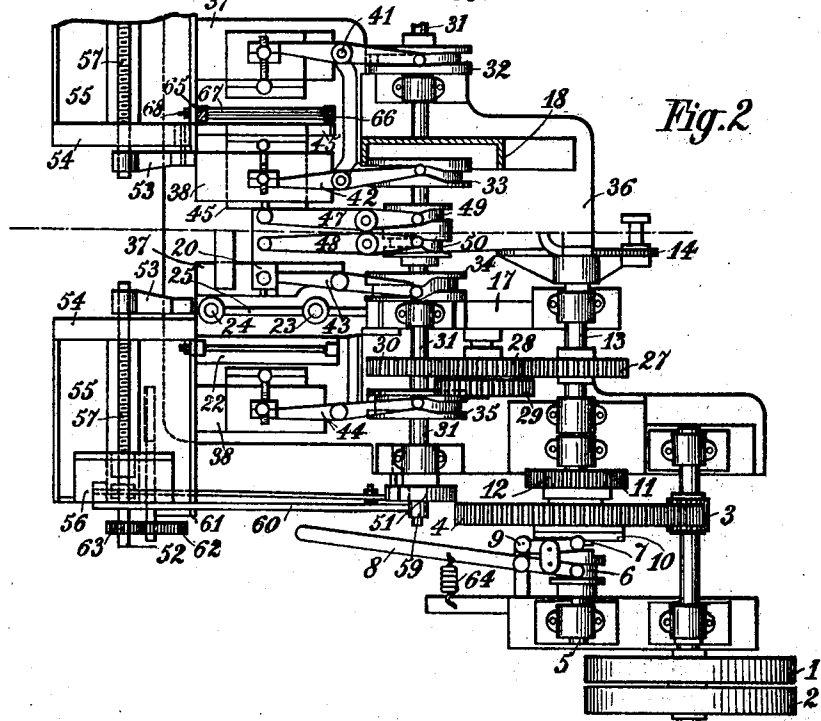


A. CHAUVIN.
 APPARATUS FOR SPLITTING SLATE BLOCKS.
 APPLICATION FILED APR. 15, 1914.

1,217,152.

Patented Feb. 27, 1917.
 6 SHEETS—SHEET 1.



WITNESSES
Armand Cichon, *Cécile Maigret*
Viktor Marenski
 Attorney

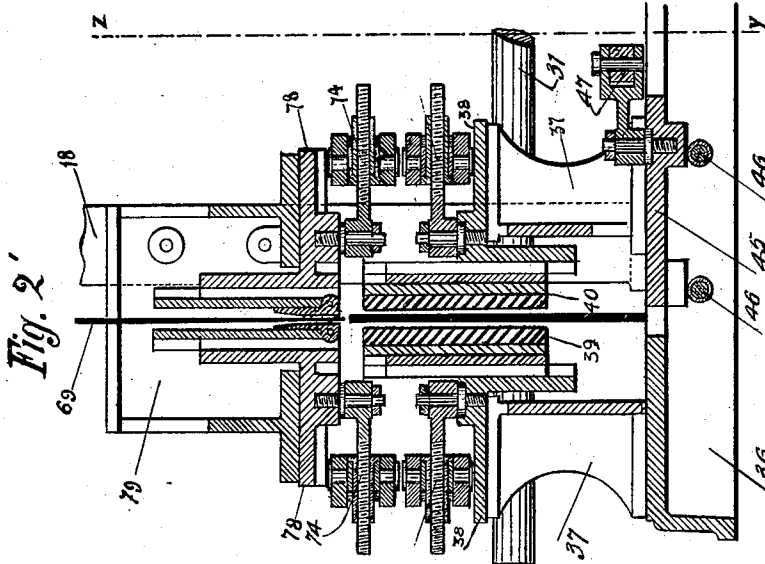
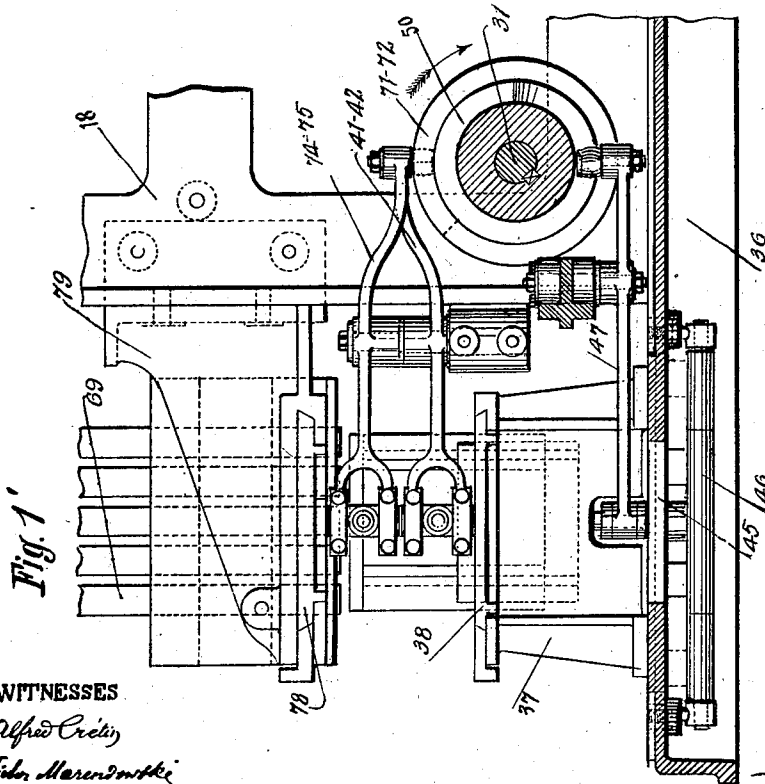
INVENTOR
Albert Chauvin
 by ATTORNEY
Viktor Marenski

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WITNESSES

Alfred C. Kelly
Victor H. Hensel

INVENTOR

Albert Chauvin

A. CHAUVIN.
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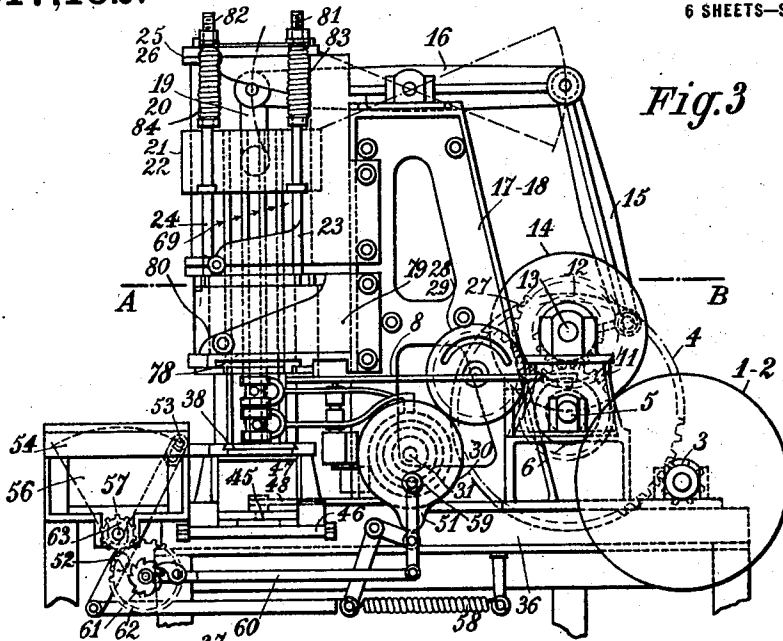


Fig. 3

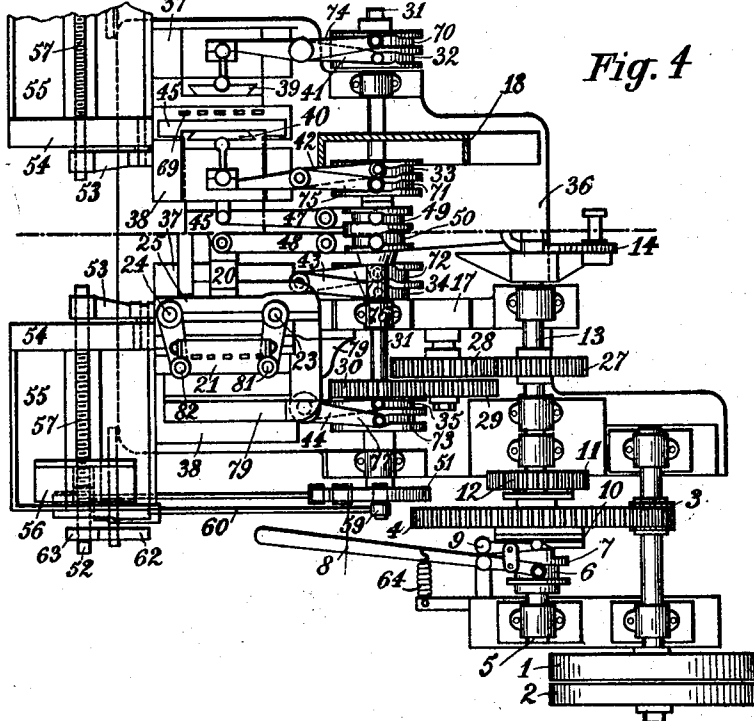


Fig. 4

WITNESSES

Marcel Buisson, *Cécile Maigret*
Viktor Marsdenowski
 Attorney

INVENTOR

Albert Chauvin
 by *Viktor Marsdenowski*
 ATTORNEY

A. CHAUVIN.
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 6 SHEETS—SHEET 4.

Fig 3'

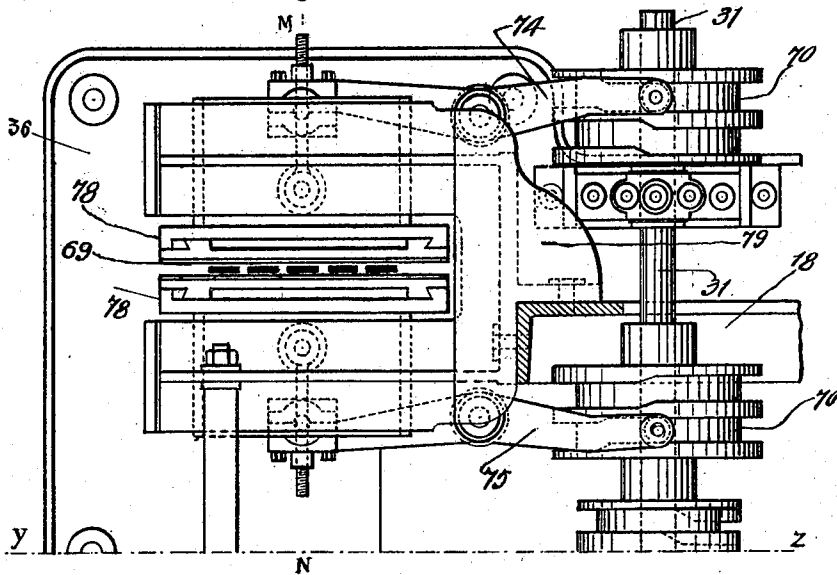
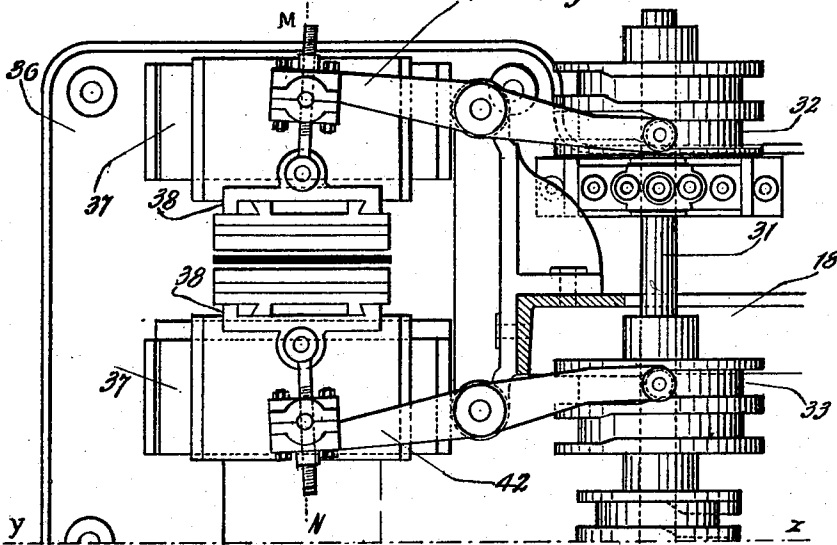


Fig. 4.



WITNESSES

Alfred Cretin
Viktor Marschall

INVENTOR

Albert Chauvin

A. CHAUVIN.
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6 SHEETS—SHEET 5.

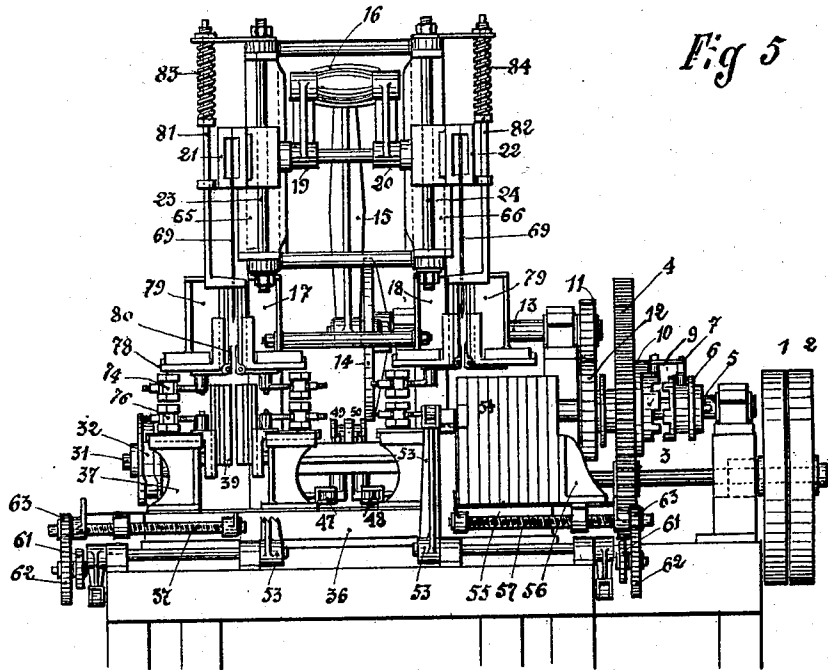


Fig 5

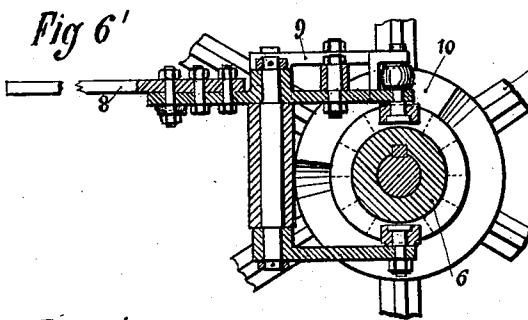


Fig 6'

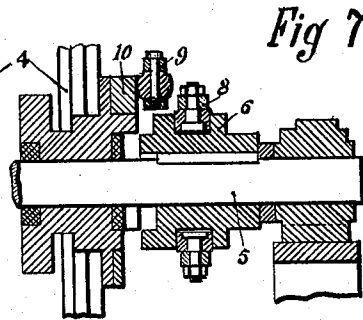


Fig 7

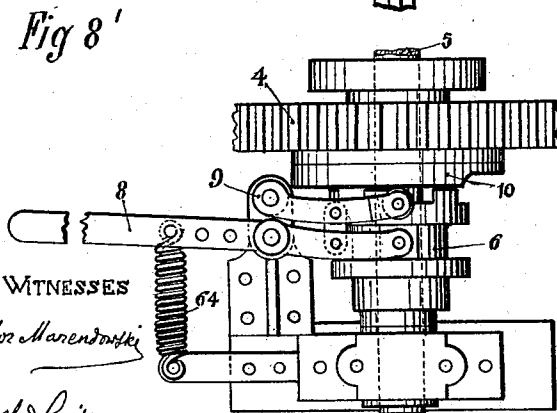


Fig 8'

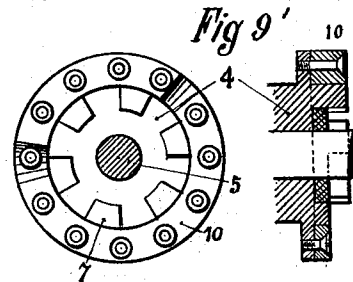


Fig 9'

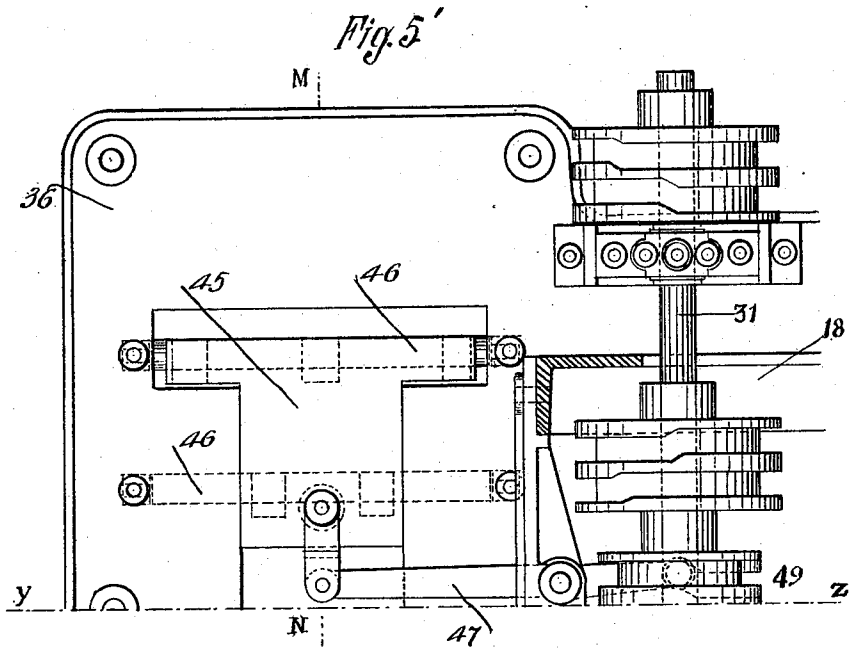
WITNESSES
Tobias Marenski
Alfred Bretin

INVENTOR
Albert Chauvin

A. CHAUVIN.
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Patented Feb. 27, 1917.
 6 SHEETS—SHEET 6.



WITNESSES

Alfred L. Loring
Victor Marendowski

INVENTOR

Albert Chauvin

UNITED STATES PATENT OFFICE.

ALBERT CHAUVIN, OF PARIS, FRANCE.

APPARATUS FOR SPLITTING SLATE BLOCKS.

1,217,152.

Specification of Letters Patent.

Patented Feb. 27, 1917.

Application filed April 15, 1914. Serial No. 832,089.

To all whom it may concern:

Be it known that I, ALBERT CHAUVIN, citizen of the French Republic, residing at Paris, Department of Seine, France, have invented new and useful Improvements in Apparatus for Splitting Slate Blocks, of which the following is a specification.

This invention relates to improvements in machines for splitting slate blocks.

Machines for splitting slate blocks have already been proposed in which the various processes can be carried out but in these machines the feeding of the blocks and the actuating of the machine are done by hand which naturally is somewhat inconvenient.

The present invention consists of a machine for splitting slate blocks by a constant and continuous pressure during the operation in which the operation of the tools, the feeding of the blocks to the tools, the centering of the blocks and their discharge from the machine are all automatic.

The machines may be simple or multiple, i. e., they may be arranged to split only one block into two, or they may be arranged to split a number of blocks either simultaneously or successively.

It is well understood that the machines and their parts can be modified according to requirements and circumstances and that any means may be employed to actuate the machine or transmit the movement to the different parts and their accessories without departing from the principal idea of splitting slate blocks mechanically by submitting the splitting tools during their work to a constant and continuous pressure.

The invention will be described in detail with reference to the accompanying drawings which show by way of example two forms of double machines, one with knives and the other with blades.

Figures 1 and 2 show respectively an elevation and a plan, partly in section and partly broken away of a double machine with blades.

Figs. 3 and 4 show similar views of the same machine but provided with knives.

Fig. 5 is a face view of the double machine in which the blocks and clamping mechanism have been left out in order to show the back cutters.

The two coupled machines illustrated have similar devices for gripping and releasing the blades, blocks and movable tables and such devices are shown on a larger scale on

the additional drawings in which: Fig. 1' is an outer side view and Fig. 2' is a cross sectional view; Fig. 3' is a plan view of the blade holding jaws; Fig. 4' is a plan view of the block holding jaws; Fig. 5' is a plan view of the movable table for supporting the blocks during the splitting operation and of the means for moving them backward to drop the splitted sheets.

Fig. 6' is a longitudinal section view through axle of the fork which controls clutch 6.

Fig. 7' is a longitudinal section view through axle of Fig. 6'.

Fig. 8' is a plan view of Fig. 6'.

Fig. 9' shows face and side views of cam 10 on Fig. 6'.

The machine shown in Figs. 1 and 2 is arranged to split simultaneously two blocks each by a knife into two pieces.

The power is transmitted by the fast and loose pulleys 1, 2, arranged on a horizontal shaft carrying the pinion 3 engaging with a wheel 4 loose on the intermediate shaft 5. This shaft carries a clutch member 6 adapted to engage with the other member 7 on the wheel 4.

A hand engaging lever 8 connected to the clutch member 6, in the absence of an automatic control, is connected to a lever 9 adapted to engage with the cam 10 fixed on the hub of the wheel 4.

The lever 9 after the splitting of a block acts on the clutch member 6 to disengage it and to stop the machine to allow of the introduction by hand of fresh blocks between the clamping jaws after which the clutch is reengaged by the action of the spring 64 on the lever 8.

The shaft 5 carries a wheel 11 engaging with a pinion 12 keyed on the shaft 13 which carries a disk 14 to which is pivoted one end of the connecting rod 15.

The rod 15 is connected to a balance arm 16 the axle of oscillation of which is carried on the top of the frames 17, 18. The left end of the rod 16 is connected to two small rods 19, 20 pivoted to slides 21, 22.

The slides 21, 22 are guided by the rods 23, 24 carried by the supports 25, 26 fixed to the frames and these slides carry the blades serving to split the slate.

On the shaft 13 is keyed a wheel 27 which transmits the motion to the wheel 30 on the shaft 31 through the wheels 28 or 29. These wheels are fixed together and the wheel 30 is

engaged with one or the other according to the height of the blocks to be split.

On the shaft 31 are mounted four cams 32, 33, 34, 35, controlling the levers 41, 42, 43, 44, connected by small rods to horizontally sliding carriages the four supports 37, 38 of which are mounted on the base plate 36.

On the level base of these carriages are fixed the clamping jaws 39, 40 of rubber between which are held and centered the blocks which are to be split. The jaws are actuated by the levers 41, 42, 43, 44.

Movable tables 45, slide under the supports 37, 38 on rollers 46 which are mounted in hanging brackets carried on the base plate 36.

On the shaft 31 are mounted cams 49, 50, with which the levers 47, 48 engage. These levers actuate the tables 45 to cause them to support the blocks at the moment of cleavage and to withdraw them therefrom immediately after the cleavage to allow the split pieces to fall into a special box arranged underneath.

A cam 51 actuates through a succession of levers and rods an arm 53 mounted on the shaft 52. The other end of the arm 53 engages in a groove in a slide 54 belonging to a box 55 carrying the blocks to be split.

A plate 56 controlled by a screw 57 moves all the blocks toward the slide 54 the slot of which is engaged by the arm 53 which causes it to push a single block toward the jaws and which is returned to its normal position by the action of the spring 58.

The cam 51 carries a stud 59 which through a depending rod controls the pawl lever 60 acting on the ratchet wheel 61.

On the shaft of the ratchet wheel 61 is keyed a wheel 62 engaging with a pinion 63 mounted on the screw 57 which controls the plate 56.

Two vertical rods 65, 66 are fixed to the slides 21, 22 connected to the balance arm 16. A steel blade 67 serving to split the blocks is attached to the ends of these rods.

The blade 67 is broad and thin and is fixed to the rod 66 by pins and to the rod 65 by a clamp 68 fitted with a screw and nut to allow of the tension of the blade being regulated.

The action of the machine is as follows:

Suppose the machine to be in operation and a block to have just been cut.

By the action of the cams 32, 33, 34, 35, 49, 50 the jaws holding the blocks open, the tables 45 withdrawn so that the split portions fall under the machine while the blades are raised and the screw 57 moves the blocks toward the slide 54.

At the moment when the tables return the arms 53 push a block between the jaws 39, 40 which center and clamp it by the new position of the cams. Then the balance

arm 6 causes the blades to descend which by their continuous and progressive pressure effect the splitting. This operation finished, the cycle of movements is again gone through with the succeeding blocks.

The machine shown in Figs. 3 and 4 is a modification of the foregoing machine in that the blades are replaced by knives similar to those used in the ordinary splitting of slate by hand.

The knives 69 are fixed to the slides 21, 22. These knives are guided in their thinnest parts and are held near the base and at the ends to prevent their bending during their penetration into the block.

On the shaft 31 at the side of the other cams are arranged cams 70, 71, 72, 73 acting on the levers 74, 75, 76, 77 which are connected through small rods with the horizontal carriages 78 carried by the supports 79 fixed to the frame.

These carriages carry metallic holders 80 which under the action of the cams clamp the knives at their points and during their penetration into the stone open with the increase in width of the knives.

The rods 81, 82 controlled by the springs 83, 84 are mounted on the holders 80 to cause all the knives to approach the block at the commencement of splitting and withdraw them by the springs 83, 84.

The action of the machine is similar to that of the preceding machine.

What I claim as my invention is:

1. A machine for splitting slate blocks with continuous pressure comprising: Splitting tools, a balanced arm device and means for actuating the same to transmit a continuous pressure to the splitting tools, movable jaws, a cam device and controlling means therefor to press and release the jaws and for centering and holding the blocks in position; movable table arrangements and means for actuating the same and move the tables toward each other to carry the block during the splitting operation and to move them apart after the splitting operation to drop the splitted parts; a block feeding device for bringing the blocks one by one under the tools and means for actuating the said device; means for fixing, adjusting and guiding the tools and actuating device therefor; a gripping device for guiding the points of the blades into the stones, said gripping device comprising jaws which are movable apart as the thickness of the blades increases, and means for operating the said device, substantially as above described and shown and for the purpose set forth.

2. In a machine for splitting slate blocks the combination with splitting tools of mechanism for imparting a continuous pressure thereto, means for automatically feeding the blocks to the splitting tools, movable

tables supporting the blocks, and means for retracting the tables from underneath the splitted blocks whereby they are allowed to drop, said means including cam controlled mechanism for removing the block supporting tables at the conclusion of the splitting operation, substantially as above described and shown and for the purpose set forth.

3. In a machine for splitting slate blocks the combination with splitting tools of a slide carrying the tools, a balanced arm actuating said slide, mechanism for operating said balanced arm; movable jaws for holding and centering the blocks in position, cams controlling the movement of the holding jaws, movable tables supporting the blocks and means for retracting the tables from underneath the splitted blocks whereby they are allowed to drop, said means including cams controlling the movement of the supporting tables, an automatic feeding device, and means for transmitting motion to the various parts, substantially as above described and shown and for the purpose set forth.

4. In a machine for splitting slate blocks the combination with splitting tools of a slide carrying the tools, a balanced arm actuating said slide, mechanism for operating said balanced arm movable jaws for holding and centering the blocks in position, cams controlling the movement of the holding jaws, movable tables supporting the blocks and means for retracting the tables from underneath the splitted blocks whereby they are allowed to drop, said means including cams controlling the movement of the supporting tables, a device for holding the splitting tools at the commencement of and during their penetration into the stone, cams controlling said device an automatic feeding device, and means for transmitting motion to the various parts, substantially as above described and shown and for the purpose set forth.

5. In a machine for splitting slate blocks

the combination with splitting tools of mechanism for imparting a continuous pressure thereto, means for automatically feeding the blocks to the splitting tools, movable tables for supporting the blocks during the splitting operation and dropping the splitted parts after the splitting operation, cam controlled jaws for holding and centering the blocks and cam controlled mechanism for removing the block supporting tables at the conclusion of the splitting operation.

6. In a machine for splitting slate blocks the combination with splitting tools of a slide carrying the tools, a balanced arm actuating said slide, mechanism for operating said balanced arm, movable jaws for holding and centering the blocks in position, cams controlling the movement of the holding jaws, movable tables supporting the blocks, cams controlling the movement of the supporting tables, an automatic feeding device, and means for transmitting motion to the various parts.

7. In a machine for splitting slate blocks the combination with splitting tools of a slide carrying the tools, a balanced arm actuating said slide, mechanism for operating said balanced arm; movable jaws for holding and centering the blocks in position, cams controlling the movement of the holding jaws, movable tables supporting the blocks, cams controlling the movement of the supporting tables, a device for holding the splitting tools at the commencement of and during their penetration into the stone, cams controlling said device, an automatic feeding device, and means for transmitting motion to the various parts.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBERT CHAUVIN.

Witnesses:

J. BARNABÉ JEAN,
LOUIS BOULETTE.