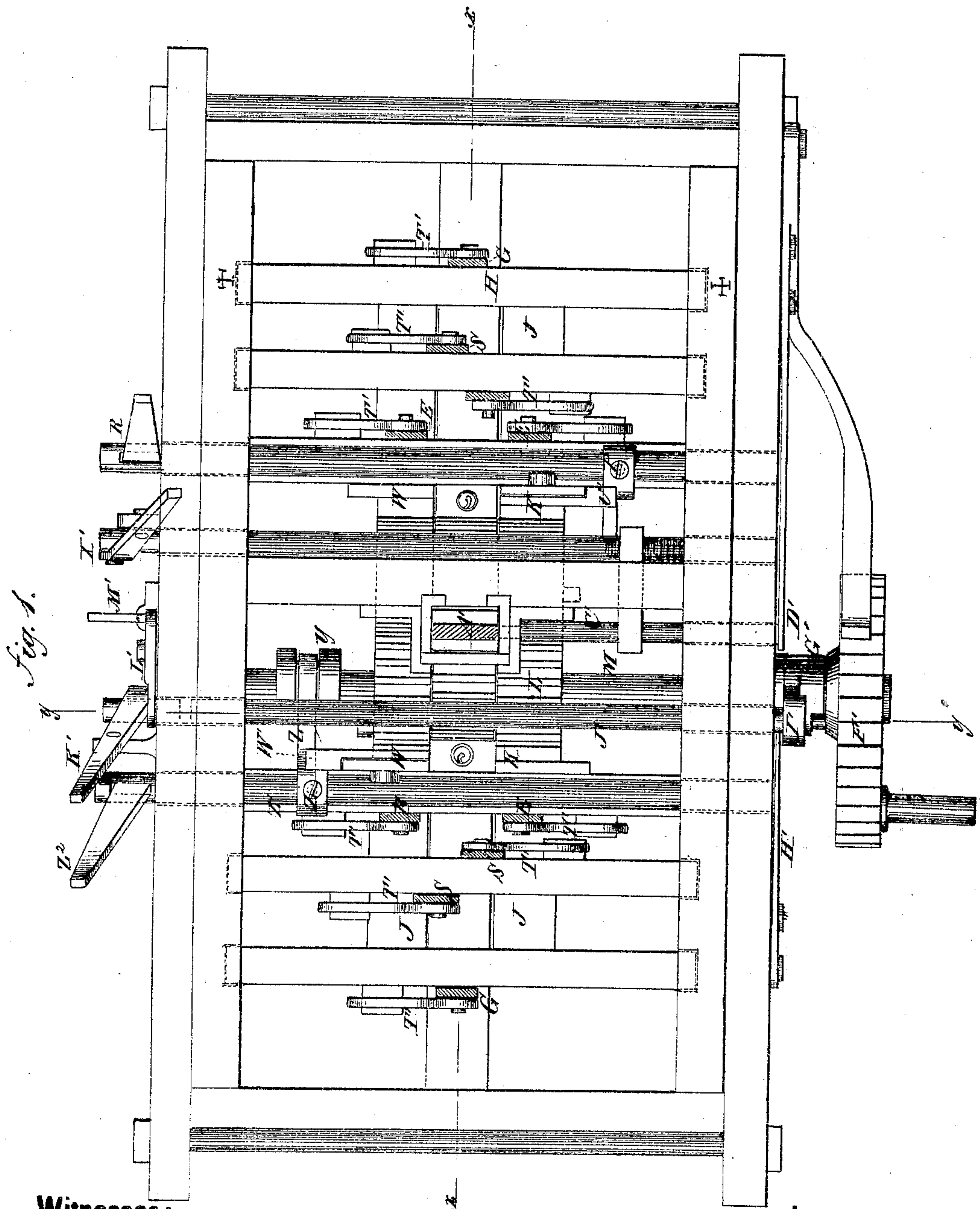


C. SHELMANDINE.
Machines for Riving Shingles.

No. 144,292.

Patented Nov. 4, 1873.



Witnesses:

Gustave Dietrich
Bedquick

Inventor:

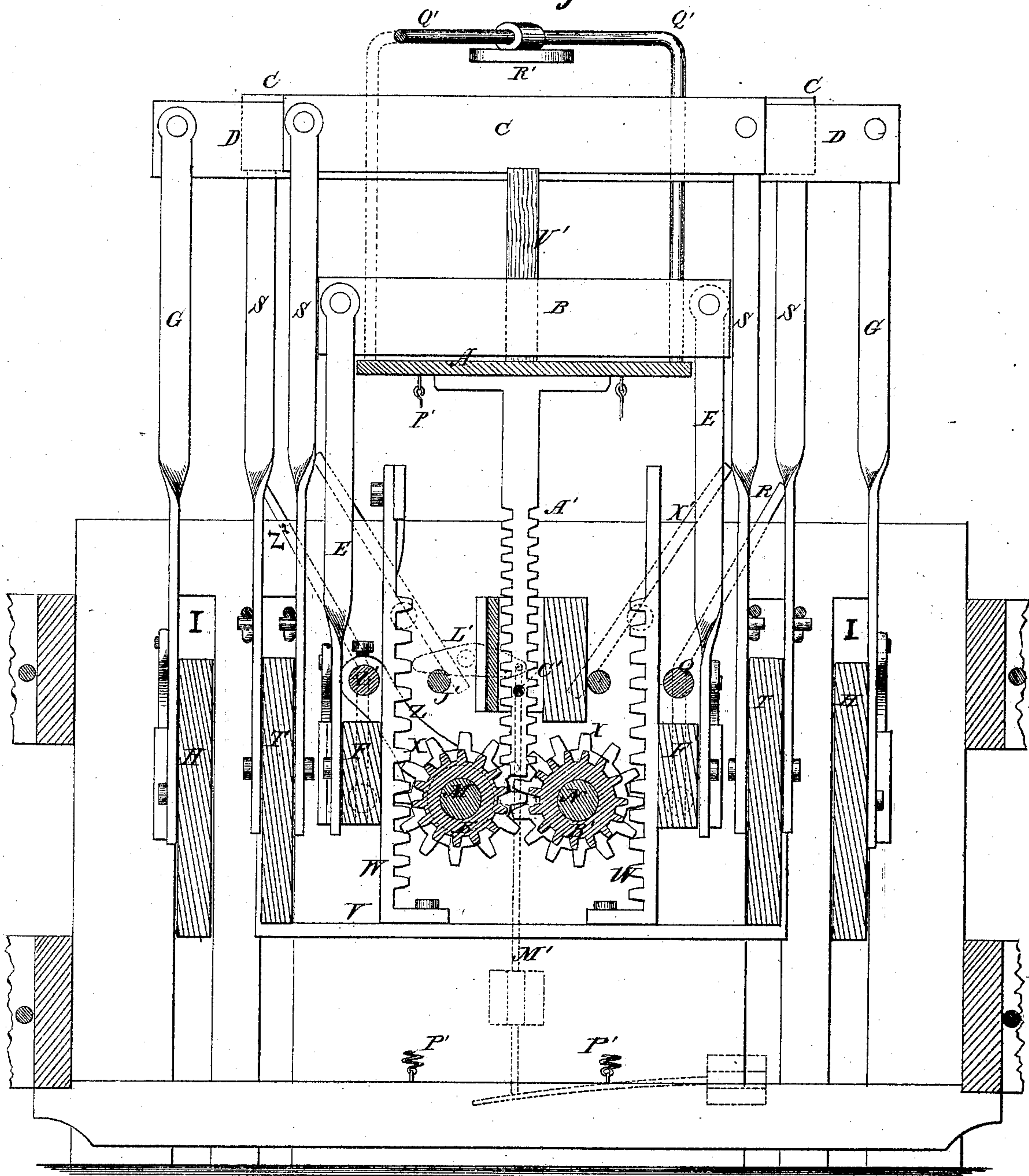
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Fig. 2.



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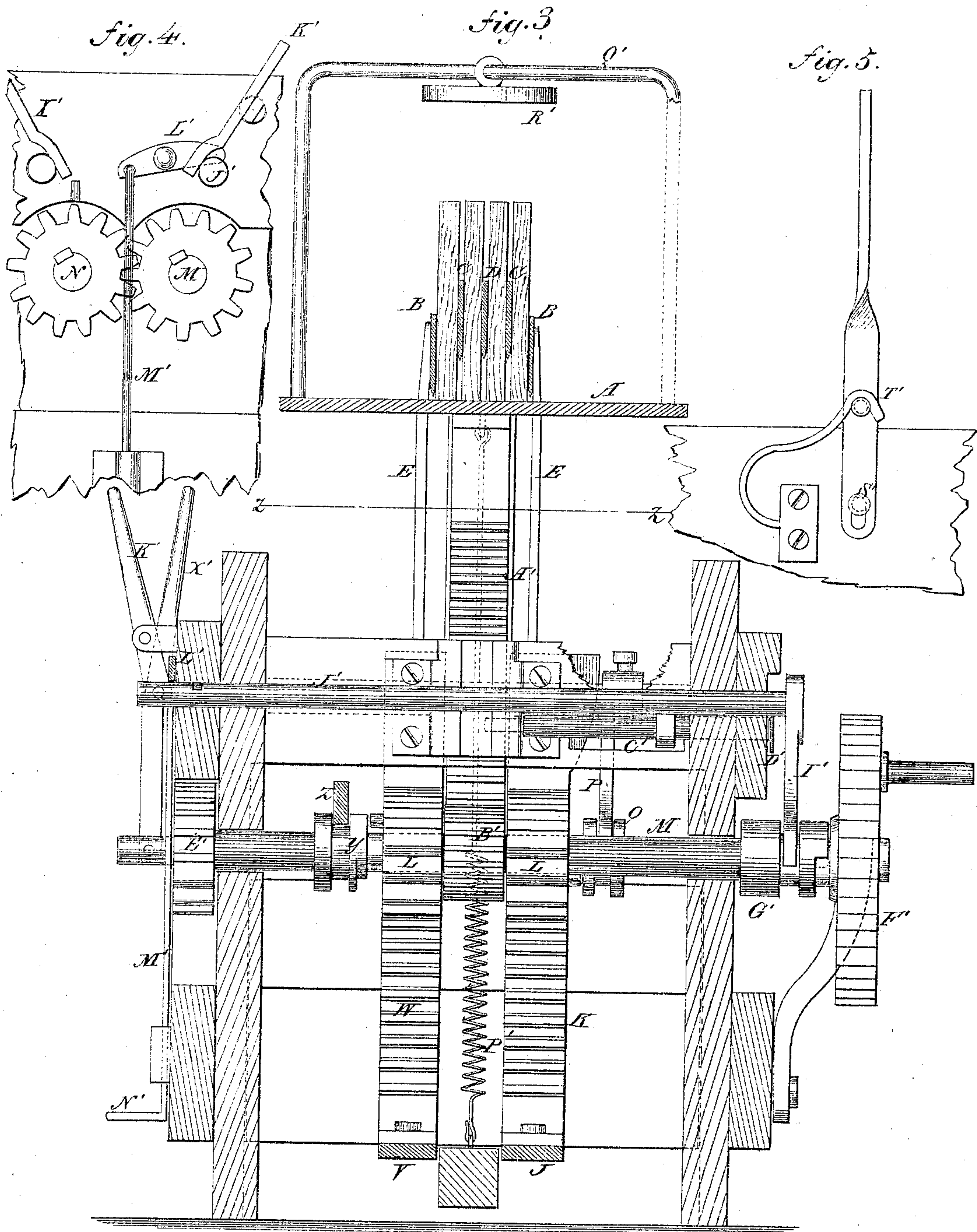
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UNITED STATES PATENT OFFICE.

CHARLES SHELMANDINE, OF JEFFERSON, NEW YORK.

IMPROVEMENT IN MACHINES FOR RIVING SHINGLES.

Specification forming part of Letters Patent No. **144,292**, dated November 4, 1873; application filed September 13, 1873.

To all whom it may concern:

Be it known that I, CHARLES SHELMANDINE, of Jefferson, in the county of Schoharie and State of New York, have invented a new Improvement in Machine for Riving Shingles, of which the following is a specification:

The object of my invention is to provide a machine by which shingle, stave, and heading bolts can be rapidly and economically rived into blanks; and it consists of two or more sets of movable knives or blades, a set of stationary ones, and a movable table, and operating devices for the table and the movable knives, all combined and arranged so that a bolt put on the table under the knives will be forced against the stationary knives and split on the sides to remove the spalt; then a set of movable knives will move down and split the block into two or more pieces; and then the next set will operate in the same way, and complete the operation by successive actions, which are necessary in order that the knives will not bind in the block, as they would if the whole gang were forced through it simultaneously.

Figure 1 is a plan view of my improved riving-machine, partly in section, taken on the line *z z* of Fig. 3. Fig. 2 is a longitudinal sectional elevation taken on the line *x x* of Fig. 1. Fig. 3 is a cross-section taken on the line *y y* of Fig. 1. Fig. 4 is a portion of the machine in side elevation, and Fig. 5 is a detail view of some of the parts.

Similar letters of reference indicate corresponding parts.

A is the splitting or riving table, on which the bolts are set on end under the two stationary splitting-blades B, also under the movable blades C and D, all of which are arranged side by side, with their edges pointing downward toward the table, and all constituting a gang of which the blades are as far apart as the required thickness of the blanks to be made. The blades B are at the extremities of the gang, and are attached to bars E attached to and supported on the stationary cross-beams of the frame of the machine. These two blades constitute what I call the first set. The second set is represented in this example by the single middle blade D, which is supported on the vertical bars G, which are attached to and supported on the vertically-movable cross-

heads H, arranged in the vertical ways I in the housings, and attached to the bar J, on which are vertical toothed bars K, gearing with the pinions L on the shafts M and N, the said pinions gearing together, and being fitted on loose to allow the shafts to turn without actuating the blade while it is required to rest. A clutch, O, connects with the pinion on shaft N. When the blade is to be worked, said clutch is actuated by the arm P on the sliding rod Q, which is actuated by the lever R. C represents the third set of blades. They are between the middle blade D and the two outside blades B, and they are mounted on the bars S, which are attached to the movable cross-heads T arranged in the vertical ways U, and attached to the bar V, having the toothed bars W rising up from it, and gearing with the pinions X on the shafts M and N, and also gearing together, said pinions being fixed loose so as not to turn except when the blades C are to be worked, and the one on shaft M being provided with a sliding clutch, Y, to set it in motion at the proper time. The clutch is actuated by an arm, Z, on the sliding shaft Z¹, which is actuated by the lever Z². The table is mounted on the top of the double-toothed bar A', which gears with the pinions B' on the shafts M and N, said pinions being fast on said shafts and turning continually with them. They force the table up till the lower end of bar A' escapes from them. A sliding catch-bolt, C', is then forced into a hole in the bar by a spring, D', and holds it up so that said pinions can continue to turn while the shafts are continued in motion for actuating splitting-blades. These shafts are geared together by the pinions E' on one side of the machine, and on the other side has a loose driving-wheel, F', to which the power is applied, and with which there is a clutch, G', which is thrown in connection with the wheel by a spring, H', acting on the arm I', which is on the sliding rod J', extending through it to the other side of the machine, and having a shifting-lever, K', connected with it. A latch, L', drops into a notch in rod J' by the side of the frame, to hold clutch I' out of gear with the wheel, and has a rod, M', connected with it, having a foot-piece, N', near the bottom of the frame, so that the attendant can trip the sliding rod J' and allow spring

H' to throw in the clutch when he wishes to start the machine by putting his foot on said foot-piece. A spring forces the rod up and causes the trip-catch to fall into the notch in rod J' whenever the clutch is pulled out of connection with the driving-wheel. The table is provided with springs P' to pull it down after each block is split; and it has a yoke, Q', extending up over the blades, and carrying a plate, R', for striking against the split blanks remaining between the blades when the table goes down and driving them out. The bars E, G, and S, by which the blades are connected to their respective cross-heads, are pivoted to said cross-heads, as at S', Fig. 5, so that they can vibrate a little to allow the blades such lateral motion as may be necessary to accommodate the sinuosities of the grain of the wood, and they are confined by springs T', which hold them firmly in position when not forced out by the crooked timber, but they yield and allow the blades to follow the grain when the force is so great as to endanger the machine. They return the blades to their positions as soon as the lateral strain ceases. The table falls as much below the edges of the stationary blades as the length of a block, V', to be split. Said block is then put on the table under the blades, so that one outside blade will take off the spalt or waste. The trip-catch L is then raised by the foot, and the machine set in motion by the clutch G', which forces the block up against the stationary blades, and forces the other blades up by the block. When the table has arrived at the end of its movement and becomes fastened by the catch-bolt C', the lever R is pulled out and the pinions L' clutched in so as to force the movable blade D down through the middle of the block, which remains confined by the blades C. Just before this blade comes to the bottom a cam, v', on one of the toothed bars K comes against arm P and throws out the clutch to stop the blade.

The lever Z² is then pushed in and the pinions X clutched in, so as to set the blades C in motion. They are forced down in like manner, splitting the two remaining portions of the block and completing the work. A cam, W', acting on arm Z, throws them out also. Then clutch G' is thrown out, and the shafts M N are adjusted by a mark on the side of the frame by setting a tooth of one of the pinions E' to said mark, so that, the table being let fall, its toothed bar A' will mesh with the pinions B'. The catch-rod C' is then pushed out by lever X', with which it is connected, and the table is pulled down by the springs P'; at the same time the plate R' forces the blanks out from between the blades. More blades may be used, if preferred, with the same contrivances for operating them repeated. For splitting wood the blades C and D will be removed and only the stationary blades used.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of the movable table A, stationary blades B, one or more sets of movable blades, C D, and mechanism for operating the table and the sets of movable blades successively, substantially as specified.

2. The double-toothed rack A', pinions B', catch-bolt C', and spring D', combined and arranged substantially as specified.

3. One or more blades, C D, bars S, cross-heads T, bars V, toothed bars W, and pinions X, combined and arranged substantially as specified.

4. The combination of the yoke Q' and discharger K' with the table A and splitting-blades, substantially as specified.

CHARLES SHELMANDINE.

Witnesses:

NATHAN MANN,

JOSEPH R. STANLEY.