

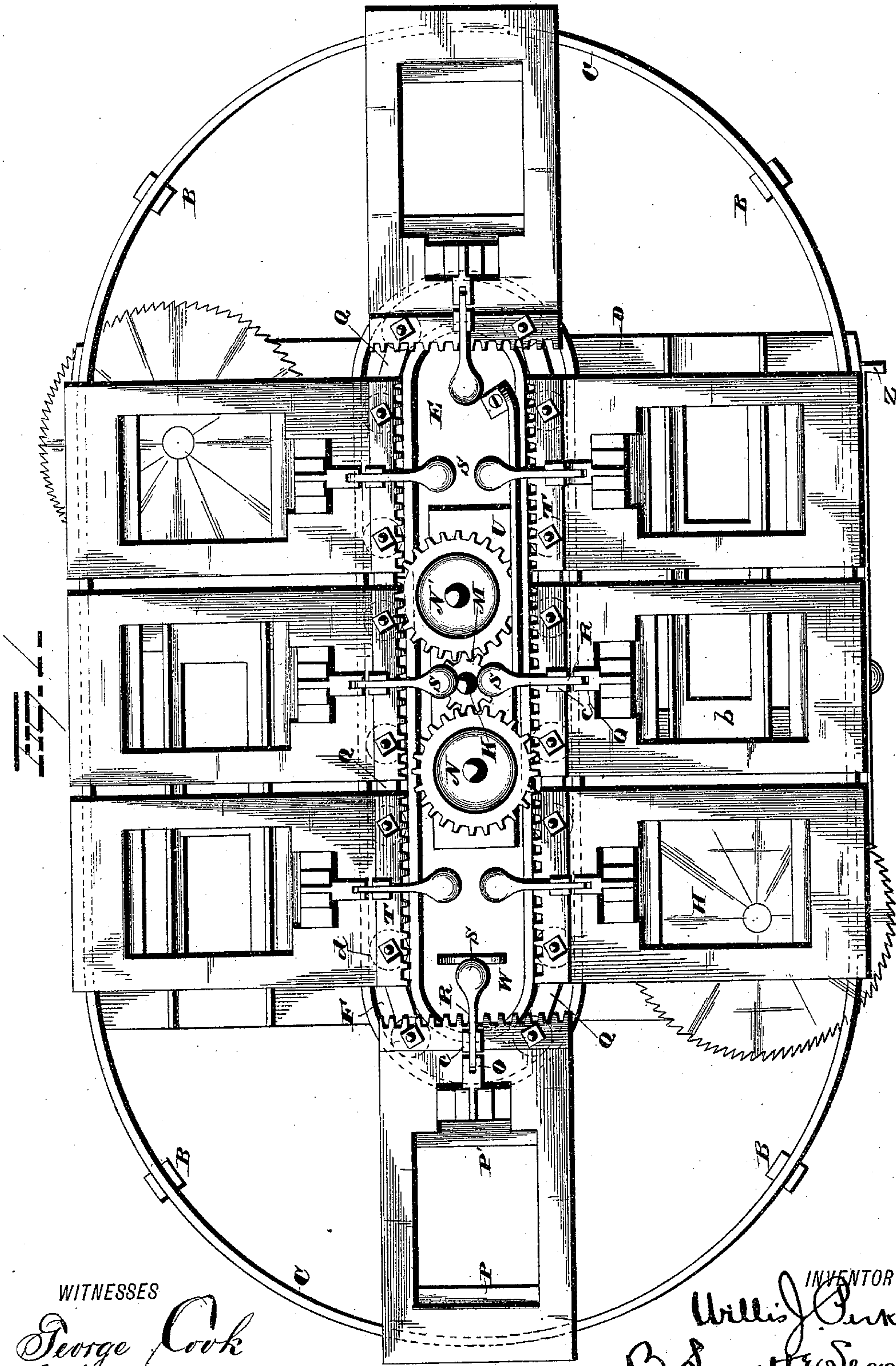
(No Model.)

4 Sheets—Sheet 1.

W. J. PERKINS.
SHINGLE SAWING MACHINE.

No. 287,462.

Patented Oct. 30, 1883.



WITNESSES

George Cook
S. J. Nottingham

INVENTOR

Willis J. Perkins
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(No Model.)

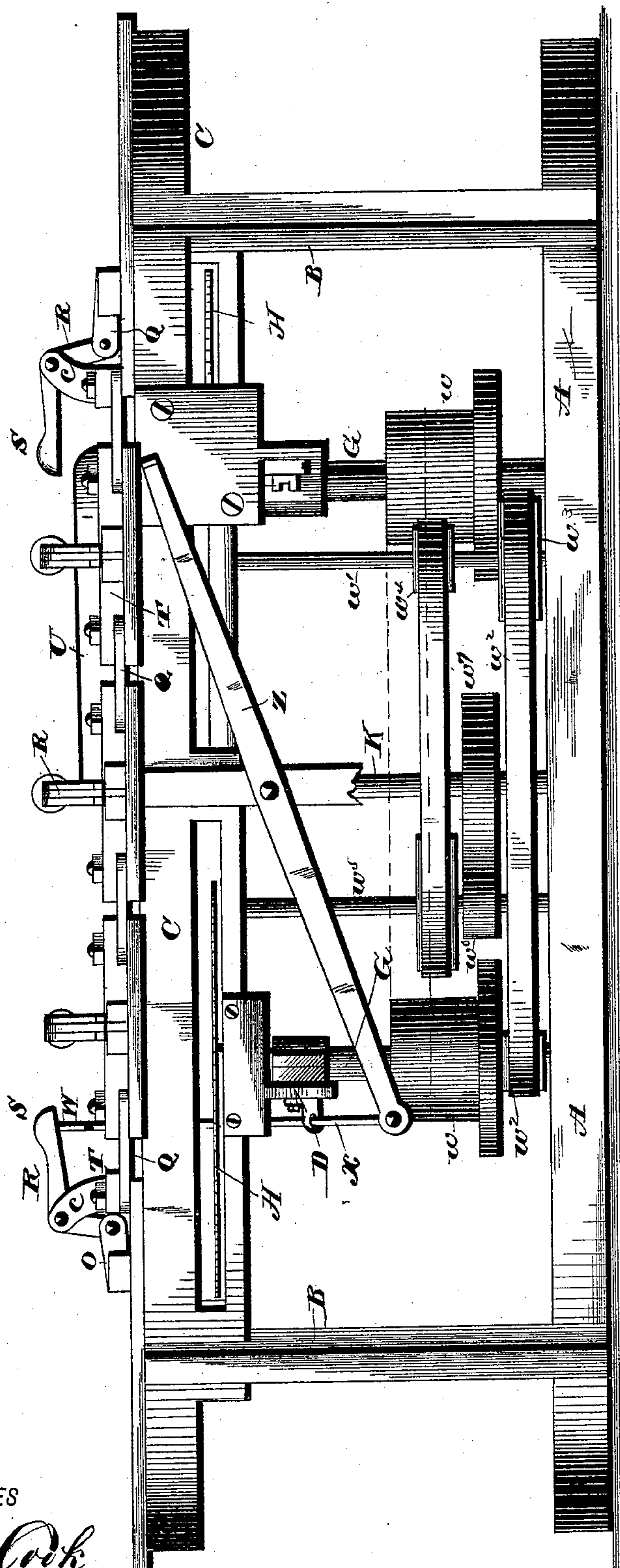
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FIG. 2.



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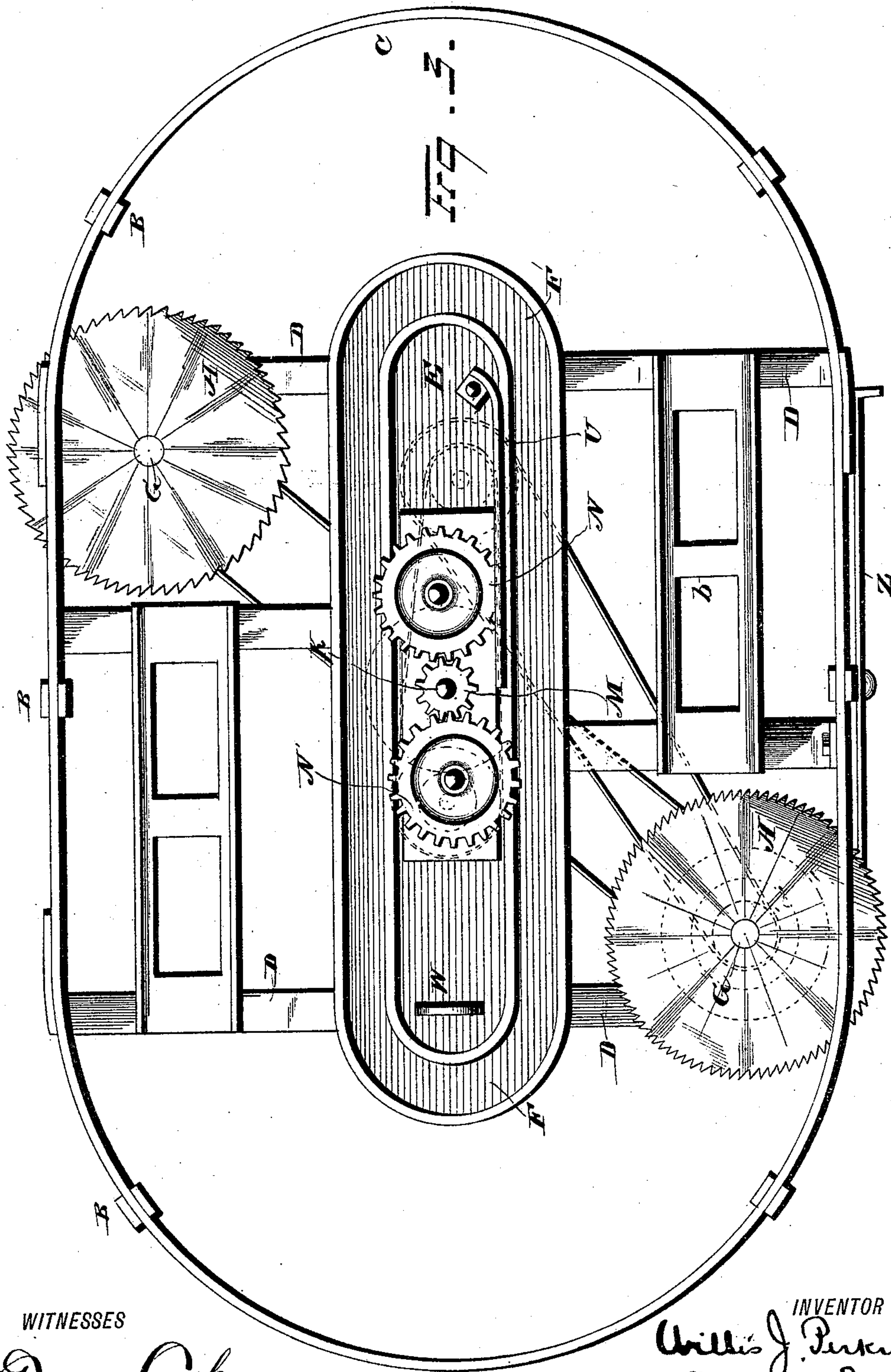
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Fig. 4.

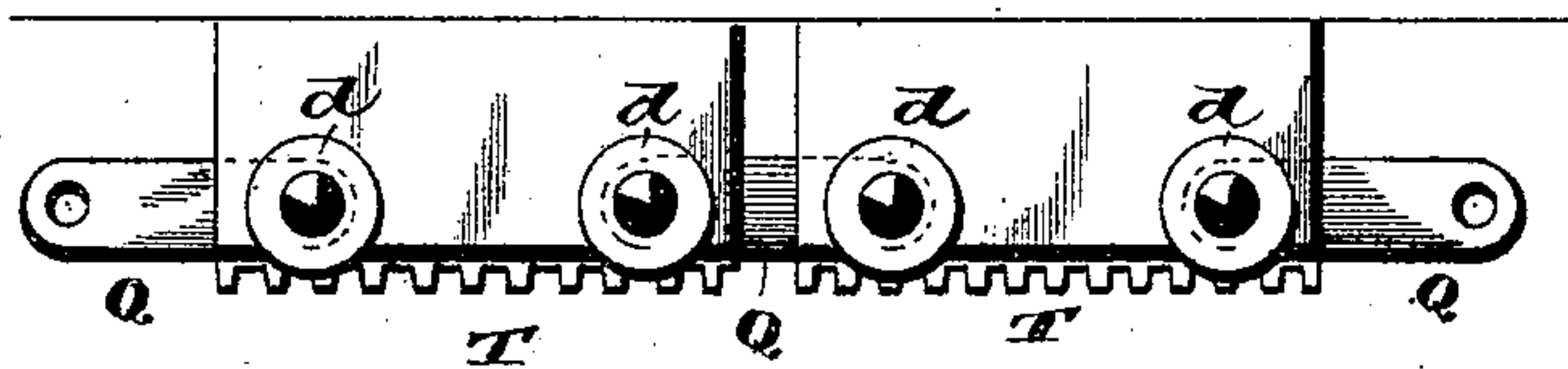


Fig. 6

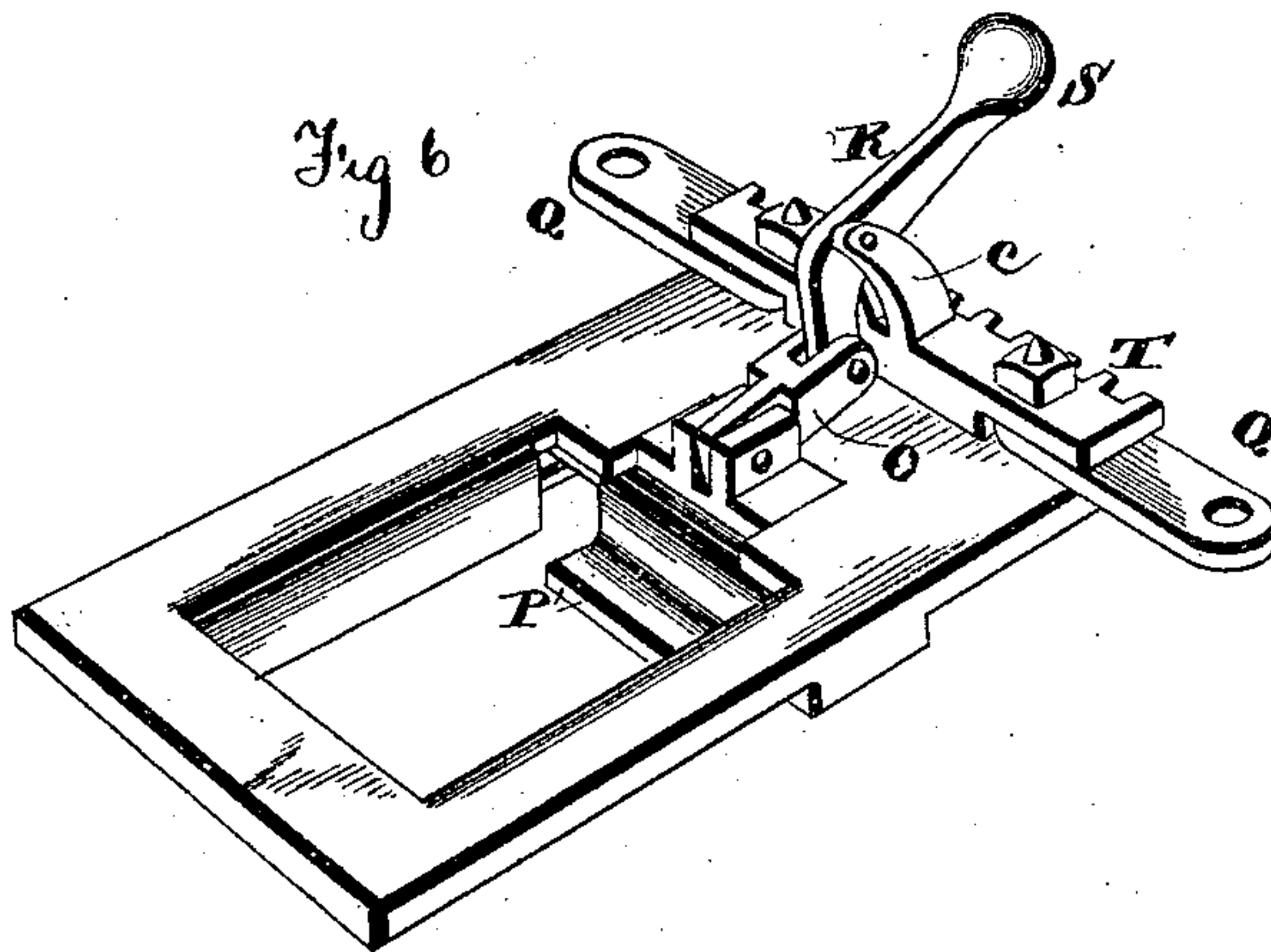
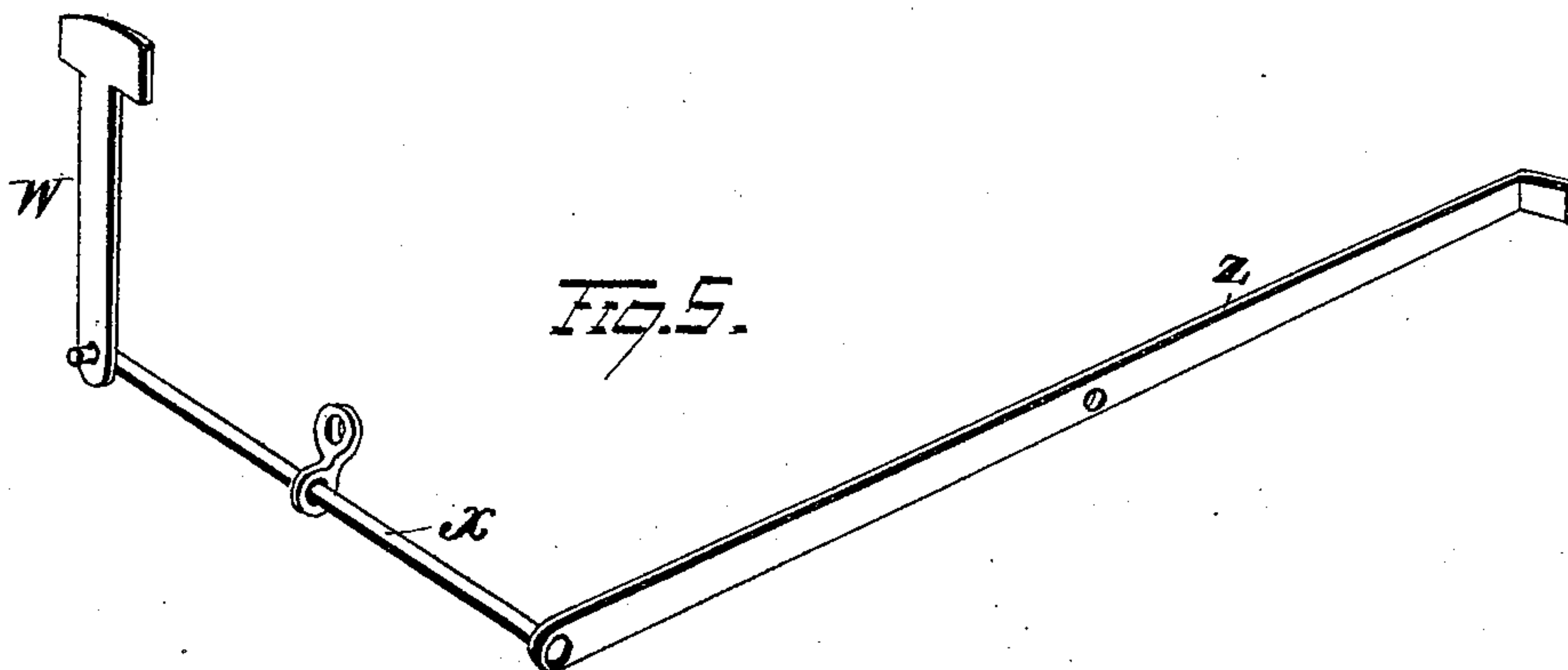


Fig. 5.



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UNITED STATES PATENT OFFICE.

WILLIS J. PERKINS, OF GRAND RAPIDS, MICHIGAN.

SHINGLE-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 287,462, dated October 30, 1883.

Application filed June 28, 1883. (No model.)

To all whom it may concern:

Be it known that I, WILLIS J. PERKINS, of Grand Rapids, in the county of Kent and State of Michigan, have invented certain new and
5 useful Improvements in Shingle-Sawing Machines; and I do hereby 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
10 use the same.

My invention relates to an improvement in shingle-sawing machines; and it consists of a series of carriages flexibly connected together and adapted to travel on a horizontal endless
15 track above a horizontally-revolving saw, and mechanism for automatically feeding the shingle-bolts to the saws.

My invention further consists of the parts and combinations of parts, as will be more
20 fully described, and pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of my improved machine. Fig. 2 is a view in side elevation of the same. Fig. 3 is a plan view with the carriage removed.
25 Fig. 4 is a detached view, showing the manner of connecting the carriages. Fig. 5 is a detached perspective view of the spalt-remover and the levers for operating the same, and Fig. 6 is a detached perspective view of one of the
30 carriages.

A represents base of the machine, provided with the upright standards B, which latter support the endless rail C.

D are transverse bars, the outer ends of
35 which are rigidly secured to the endless rail C, and form supports for the central plate, E, which latter is provided on its upper face with an endless groove, F, formed concentric with the rail C. The bars D D, besides supporting
40 the central plate, E, are also provided with bearings, in which the vertical shafts G G of the horizontal saws H H are journaled. These saws are preferably situated on opposite sides of the machine, immediately under the shingle-bolt carriage, and are adapted to cut a
45 shingle from each bolt as the latter passes over the saws.

The saw-arbor G is provided with a large belt-pulley, w , and a small pulley, w^3 , which
50 communicates the motion from the saw-arbor to the shaft w' through the belt w^2 . This shaft

in turn is provided above the pulley w^3 with the pulley w^4 , which transmits the motion of the shaft w' to the vertical shaft w^5 , and the
latter in turn, through the intervention of the
55 friction-wheels w^6 and w^7 , (which, by the way, can be made of any suitable material,) transmits the motion to the shaft K. The friction-wheel w^6 can be moved on the shaft w^5 to engage or disengage it from the wheel w^7 , as de-
60 sired.

The shaft K projects through the plate E, and is provided at its upper end with the small pinion, M, which latter meshes with and drives
the larger pinions, N N'. These two last-men-
65 tioned pinions are secured to shafts journaled in the plate E, and are so situated as to engage the rack-bars on opposite sides of the endless groove and move the carriage to which
the said rack-bars are secured. By applying
70 power to the opposite sides and to the carriages traveling in opposite directions, the machine is caused to run much more smoothly, and the danger of binding the parts is entirely
obviated.

The rail C and the plate E are situated in
75 the same horizontal plane, and form between them an endless trackway, on which the shingle-bolt carriages move. These carriages (eight in the present instance) are connected
80 together side by side by the links Q, the opposite ends of which latter are pivotally connected to the adjacent carriages, and form a flexible connection between the said carriages, for the purpose of enabling them to turn the
85 curves in the trackway.

The number of carriages and saws employed on the machine is dependent on the size and capacity of the machine. Thus, for instance,
90 if the machine is adapted for eight carriages, two saws would be used, if sixteen carriages are employed four saws would be used, and so on, gradually increasing the number of saws in proportion to the carriages employed. These carriages are made of metal, and each
95 is provided with a head-block, P, and a dog, P', which latter is moved automatically, as will be hereinafter described, for the purpose of feeding the bolt downward to the saws.

The head-blocks P are situated, preferably,
100 near the outer end of the carriages, while the dogs P', which move in suitable slide-bearings,

are situated near the inner end of the said carriage. Each of the dogs P' is connected at its near end to one end of the link O, while the opposite end of the said link is connected to the lower end of the bell-crank lever R. This bell-crank is fulcrumed at its knee to the upright bearing c, and projects inwardly, and is provided at its outer end with a weight, S, the tendency of which is to constantly hold the dog firmly against the bolt. Each carriage is also provided on its inner edge with a rack-bar, T, which, when the carriages are united by the links, form an endless drive-chain, which meshes with the pinions before referred to, and are driven thereby. Each carriage is also provided at its opposite inner corners with the anti-friction rollers d, which latter are adapted to travel in the endless groove F, for the purpose of holding the carriages in position and the rack-bars secured to said carriages in engagement with the rack. The outer ends of the carriages run on the outer rail C, and they can, if desired, be provided with rollers or bearings, for the purpose of decreasing the friction between the parts.

U are inclined arms rigidly secured to the central plate, E, in such position as to engage the weighted end of the bell-crank, and consequently move the dog inwardly away from the shingle-bolt. These arms U are each provided at their front ends with a sharp curve, up which the horizontal arm of the bell-crank rides, until the latter have been sufficiently elevated to retract the dogs, and consequently allow the bolts to drop. The arms then incline downwardly and allow the weight end of the bell-crank to descend, and consequently lock the bolt in position to be engaged by the next saw.

Immediately below and to the outer side of each arm is the table b, on which the bolt falls after it is released by the dog. The bolts are moved along on these tables by their respective carriages, and before the end of the table is reached the bolts are firmly locked in position, with their lower faces projecting below the saw a distance sufficient to enable the saw to cut off one shingle. Before the bolt reaches the next saw it is again automatically lowered, and so on until nothing but the spalt remains, which latter is thrown out of the carriage by the upward movement of the rod W. This rod passes upwardly through the plate E and terminates in an enlarged head, while the lower end thereof is pivotally secured to the inner end of the lever X. This is centrally pivoted to the machine-frame, and is pivotally connected to one end of the operating-lever Z, which latter is centrally pivoted to the outside of the machine-frame, within easy reach of the operator. After the bolt has been reduced to spalt, the carriage containing it is allowed to proceed until the bell-crank connected thereto rests immediately over the enlarged end of the rod W. Just at this instant the operator elevates the free end of the lever Z, which, through the intervention of the lever X, elevates the

rod W. The upper enlarged end of the rod strikes the weighted end of the bell-crank, which withdraws the dog and releases the spalt and allows it to fall through onto the floor. When the empty carriage reaches the table, another bolt is dropped therein and locked, and the operation is continued.

It is evident that numerous changes in the construction and relative arrangement of the several parts might be resorted to without departing from the spirit of my invention, and hence I would have it understood that I do not limit myself to the exact construction shown and described, but consider myself at liberty to make such changes and alterations as fairly fall within the spirit and scope of my invention.

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

1. In a shingle-sawing machine, the combination, with a horizontal endless trackway, and a series of shingle-bolt carriages provided with dogs for securing the bolts thereto, the said carriages being situated in the same horizontal plane and flexibly connected together, of a horizontally-revolving saw situated below the carriages.

2. In a shingle-sawing machine, the combination, with a horizontal endless trackway and one or more horizontal saws situated below the trackway, of a series of shingle-bolt carriages flexibly connected together, each being provided with a rack-bar, and pinions engaging the rack-bars for moving the carriages, substantially as set forth.

3. In a shingle-sawing machine, the combination, with a horizontal endless trackway and one or more horizontal saws situated below the trackway, of a series of shingle-bolt carriages, each provided with a dog for locking the shingle-bolt, the said carriages being situated in the same horizontal plane and flexibly connected together, and mechanism directly connected with the dogs whereby the shingle-bolts are automatically fed to the saws, substantially as set forth.

4. In a shingle-sawing machine, the combination, with a horizontal endless trackway, a series of shingle-bolt carriages flexibly connected together, devices for automatically feeding the shingle-bolts to the saw, and a device for removing the spalt, of a horizontally-revolving saw situated below the carriages, substantially as set forth.

5. In a shingle-sawing machine, the combination, with a horizontal endless trackway, suitable driving-pinions, and a horizontally-revolving saw, of a series of shingle-bolt carriages, each provided with a rack-bar, and links flexibly connecting the carriages, substantially as set forth.

6. In a shingle-sawing machine, the combination, with a horizontal endless trackway and a horizontally-revolving saw, of a series of shingle-bolt carriages flexibly connected together, a rack-bar secured to each carriage,

and driven pinions engaging the rack-bars of the carriages on opposite sides, substantially as set forth.

5 7. In a shingle-sawing machine, the combination, with a horizontal endless track and a horizontally-revolving saw, of a series of shingle-bolt carriages situated in the same horizontal plane and flexibly connected together, each carriage being provided with a dog and
10 a weighted bell-crank lever for automatically operating the dog, mechanism for driving the carriages, and an inclined arm adapted to engage the weighted bell-crank for the purpose of feeding the bolt downward to the saw,
15 substantially as set forth.

8. In a shingle-sawing machine, the combination, with an endless horizontal track and a series of shingle-bolt carriages adapted to move thereon, of devices for releasing the
20 spalt from the carriage, substantially as set forth.

9. In a shingle-sawing machine, the combination, with a horizontal endless trackway and a series of shingle-bolt carriages, each latter being provided with a movable dog, the movements of which are controlled by a bell-crank, of a vertically-movable rod adapted to engage the bell-crank for the purpose of releasing the
25 spalt, substantially as set forth.

30 10. In a shingle-sawing machine, the combination, with a horizontal endless trackway, a series of shingle-bolt carriages flexibly connected together, each of said carriages being provided with a movable dog and a bell-crank
35 for controlling the movement of the dog, and

a horizontally-revolving saw, of a vertically-movable rod, W, the lever X, and the lever Z, all of the parts combined and adapted to operate as described.

11. In a shingle-sawing machine, the combination, with a horizontally-revolving saw and pinions for moving the shingle-bolt carriages, of a series of shingle-bolt carriages flexibly connected together, a rack-bar secured to each carriage, devices for automatically feeding the shingle-bolts to the saw, and a device for releasing the spalt, substantially as set forth.

12. In a shingle-machine, the combination, with the outer rail, C, and the inner plate, E, the latter provided with an endless groove formed concentric with the outer rail, the said rail and plate being situated in the same horizontal plane, of a series of shingle-bolt carriages provided with dogs for securing the bolts thereto, the said carriages being situated in the same horizontal plane and flexibly connected together, and provided with depending rollers adapted to travel in the endless grooves, and a horizontally-revolving saw situated below the carriage, substantially as set forth.

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

WILLIS J. PERKINS.

Witnesses:

CHAS. S. FOX,

H. A. HYDORN.