

(No Model.)

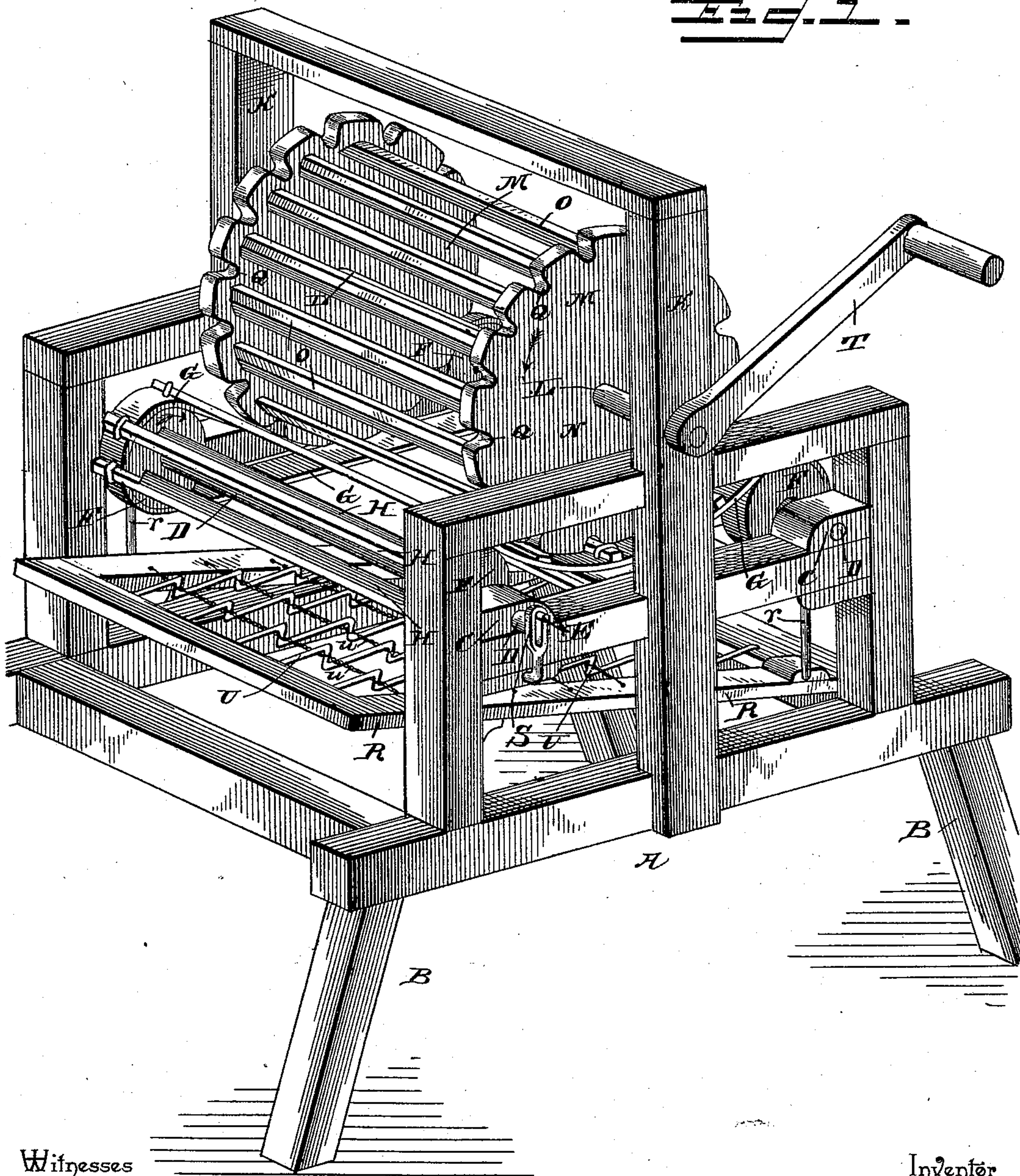
3 Sheets—Sheet 1.

M. MAPLES.
VINE STRIPPER.

No. 517,469.

Patented Apr. 3, 1894.

Fig. 1.



Witnesses

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Inventor

Melvin Maples

By *his* Attorneys,

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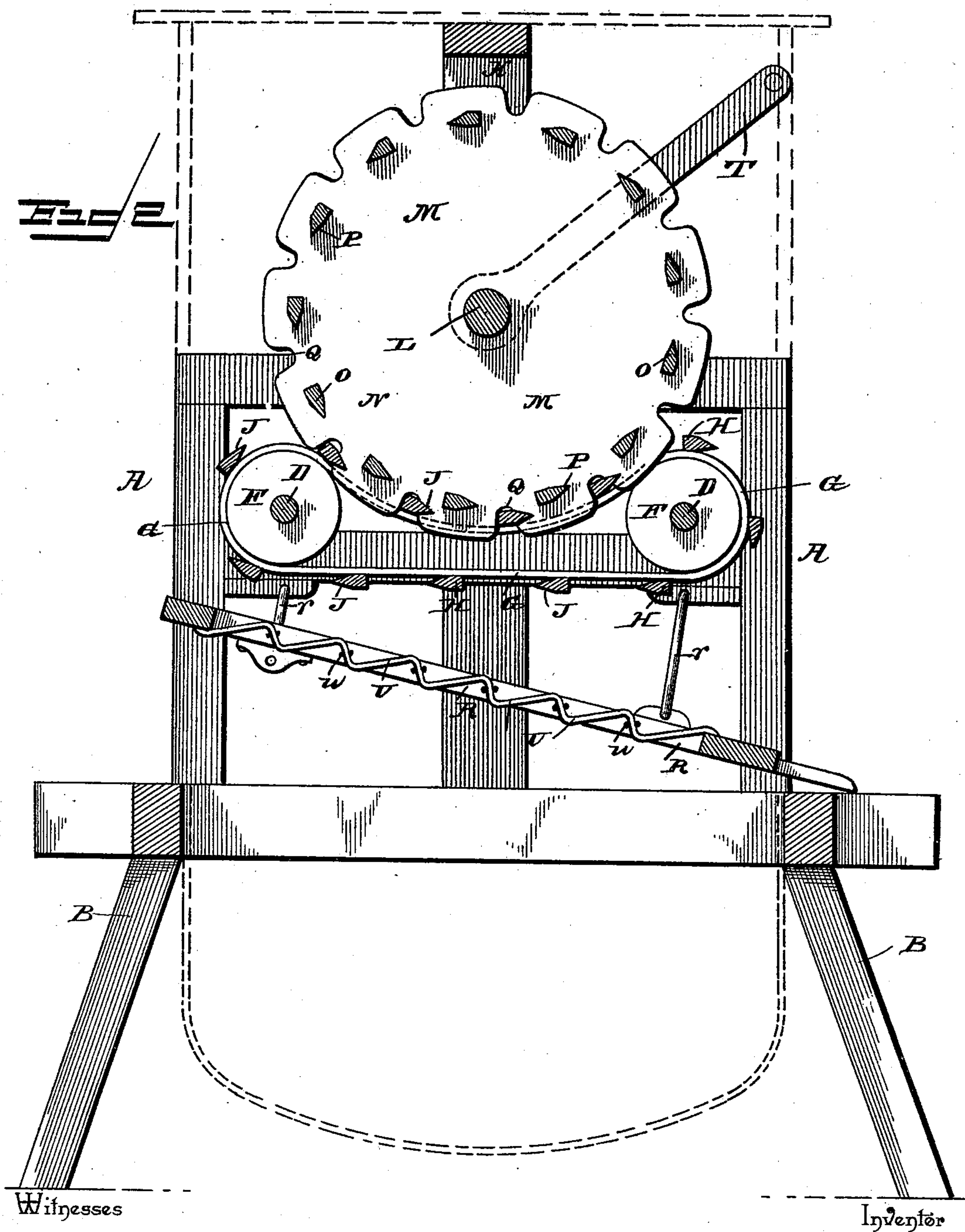
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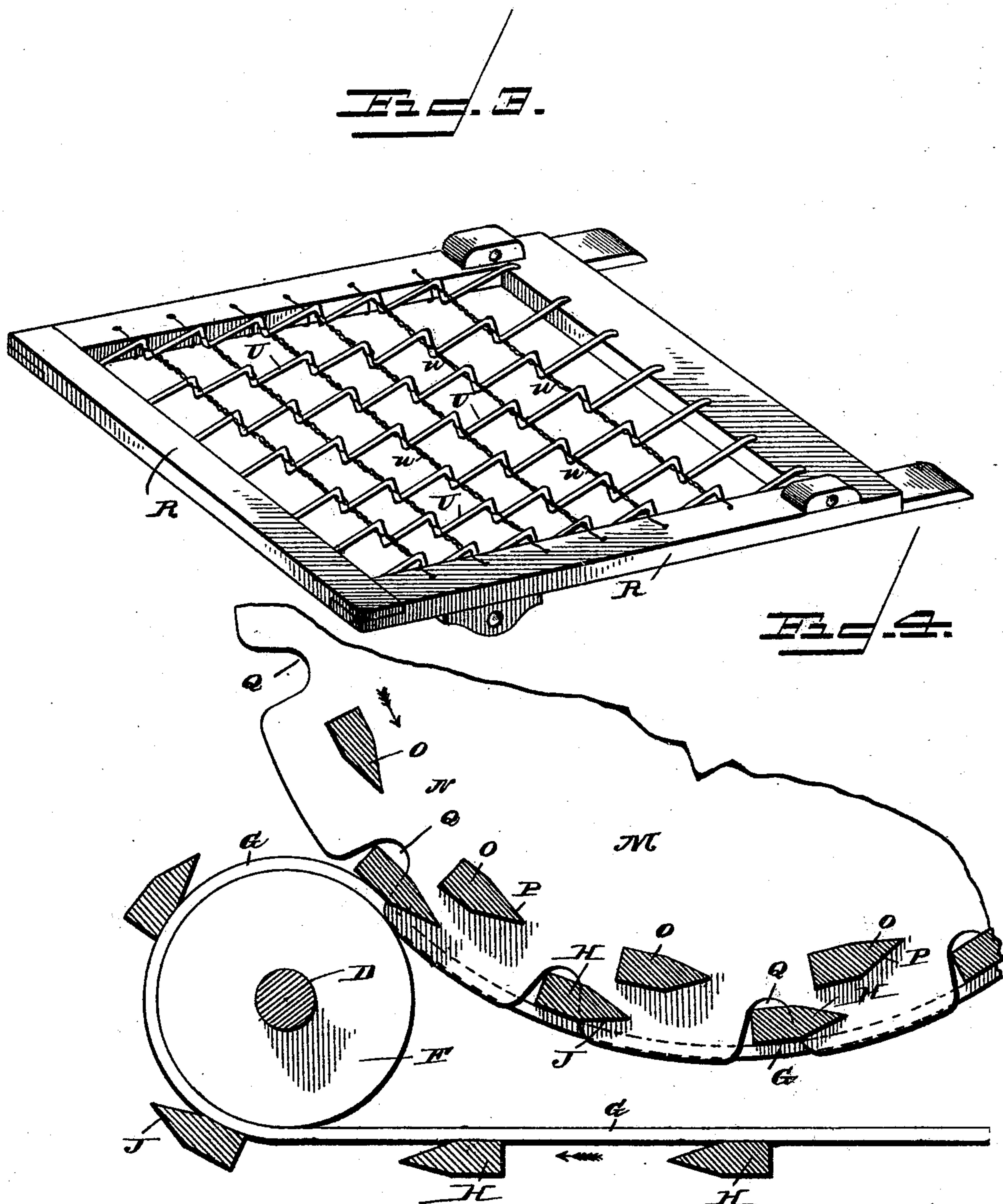
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UNITED STATES PATENT OFFICE.

MELVIN MAPLES, OF HARTWICK, NEW YORK.

VINE-STRIPPER.

SPECIFICATION forming part of Letters Patent No. 517,469, dated April 3, 1894.

Application filed May 15, 1893. Serial No. 474,234. (No model.)

To all whom it may concern:

Be it known that I, MELVIN MAPLES, a citizen of the United States, residing at Hartwick, in the county of Otsego and State of New York, have invented a new and useful Vine-Stripper, of which the following is a specification.

This invention relates to vine strippers; and it has for its object to provide an improved machine of this character which is especially adapted for stripping and cutting hops from the vine, without injuring or cutting the vine, and at the same time separating the stripped hops from the loose leaves also stripped from the vine.

To this end the main and primary object of the invention is to provide a hop stripper easily manipulated and highly efficient in operation, to effect the necessary stripping of the hops from the vines and their separation from the leaves, thereby avoiding the tedious hand picking of hops.

With this and other objects in view, which will readily appear as the nature of the invention is better understood, the same consists in the novel construction, combination, and arrangement of parts hereinafter more fully described, illustrated, and claimed.

In the accompanying drawings:—Figure 1 is a perspective view of a vine or hop stripper constructed in accordance with this invention, the inclosing frame not shown. Fig. 2 is a central vertical longitudinal sectional view of the machine, showing in dotted lines the inclosing casing. Fig. 3 is a detail in perspective of the vibrating separating screen. Fig. 4 is an enlarged detail sectional view showing more clearly the construction of the stripping knives and the gear connection of the knife drum with the knives of the knife belt.

Referring to the accompanying drawings, A represents a suitably constructed supporting frame supported, at a suitable height above the ground or floor, on the supporting legs B, and the entire frame is adapted to be incased in a suitable casing such as indicated by dotted lines in Fig. 2, of the drawings in order to prevent the hops from flying about, and such inclosing casing may either partially or entirely inclose the frame, as may be

found necessary, and will not be more particularly referred to.

The frame A, is provided at a suitable point above its rectangular base and at the opposite ends thereof with the opposite pairs of bearing boxes C, which receive the ends of the opposite parallel shafts D, one of which shafts, is stationary and the other movable. The movable shaft is arranged at the feeding end of the machine and is designed to turn in its bearings, said shaft being provided at one end with the crank arm E, the function of which will presently appear, and both of said shafts D, carry the opposite pairs of belt pulleys F. The belt pulleys F, on the stationary shaft are loosely mounted thereon so as to be free to turn, while the opposite pairs of belt pulleys turn with the moving shaft so as to impart motion thereto, and the said opposite pairs of belt pulleys F, are connected by the opposite parallel knife belts G. The opposite parallel knife belts G, are endless and may be substituted by chains passing over chain wheels in lieu of the belt pulleys, as will be apparent, and said opposite parallel belts are connected by a regularly spaced series of transverse stripping knives H. The transverse stripping knives H, are suitably attached at their opposite extremities to the belts G, and are provided with double beveled cutting edges J, which cutting edges are disposed in the direction of the travel of the belts, and are therefore arranged flat on the belts which they connect, so as to provide what may be termed a lower endless knife belt.

At a point intermediate of its ends, the frame, A, is provided with the opposite upright extensions K, which form the bearings for the upper drum shaft L, on which drum shaft L, is securely mounted the upper knife drum M. The knife drum M, is disposed between the opposite pairs of belt pulleys F, and comprises the spaced drum disks N, connected by the intermediate drum knives O. The drum stripping knives O, are constructed in a shape similar to the knives H, and have their ends connected to the spaced disks N, at a point near their circumferences, so that as the knife drum is put in motion the knives carried thereby will not only alter-

nate with the knives of the belt, but will also travel in practically the same plane therewith. The said knives O, are also provided with double beveled cutting edges P, disposed in the direction of rotation of the drum, and therefore in the same direction as the cutting edges of the belt knives.

The knife drum M, is slightly shorter in length than the width of the belt knife or the space between the parallel belts G, so that the disks N, will travel just inside of the inner edges of said belts, and said drum disks are provided with a regularly spaced series of peripheral notches Q, which are sufficiently deep so as to embrace the belt knives H, near their opposite extremities. As before stated, the knife drum is arranged between the opposite pairs of belt pulleys, and is disposed so that it bears down on the upper portion of the knife belt and depresses the same in order that the notches on the drum disks may positively engage the knives of the belt, whereby means are provided for transmitting a simultaneous motion to the knife belt together with the rotating knife drum.

Arranged inside of the frame A, below the knife belt, is the rectangular vibrating separating screen R. The vibrating separating screen R, is arranged at an angle inside of the frame and is supported on the swinging links r attached to the opposite sides of the frame, one of said links being extended into a crank end S, which loosely engages the crank arm E, of the rotating shaft D, so that a vibrating motion will be communicated to the screen when the knife drum is put in motion by the crank handle T, or other suitable driving means. The vibrating screen R, comprises a longitudinal series of shouldered screen wires U intersected transversely by the cross screen wires u, which construction provides for shaking off the leaves which will not pass therethrough, at the lower ends thereof, while allowing the hops to pass below and into a suitably arranged receptacle.

Now it is thought that the operation of the herein-described stripping machine will be readily apparent. Motion is communicated to the knife drum and the knife belt to carry the knives in the direction in which their cutting edges point, and one end of the vine is inserted at the feed end of the machine, indicated by the arrow, and is allowed to run in between the knife drum and the belt sufficiently far so that a grip can be still retained on the other outer end of the vine. By now holding onto the outer end of the vine and continuing to turn the knife devices, the vine will be held still while the knives of the drum and belt will slip along the vine and strip off the hops by cutting their stems, while the bevel on the knives is such as to prevent the same from cutting the vine, which after the hops are stripped therefrom is allowed to be carried out at the discharging end of the machine. The hops which are stripped from

the vine are dropped onto the vibrating screen and are there separated from the leaves, the hops falling through the screen into a suitable receptacle, and the leaves being shaken off at the lower end thereof.

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

Having thus described the invention, what is claimed, and desired to be secured by Letters Patent, is—

1. In a vine stripper, an endless knife belt having a series of transverse knives arranged flat, and a notched knife drum mounted above the belt and arranged to have its notches positively engage the knives of said belt and having corresponding flat knives, the cutting edges of both sets of knives being disposed in the same direction of travel and traveling together in nearly the same plane substantially as set forth.

2. In a vine stripper, the combination with the frame, of an endless open knife belt mounted within said frame, a rotating knife drum mounted above the open knife belt, and adapted to turn in contact therewith, and a vibrating separating screen arranged under the open knife belt, substantially as set forth.

3. In a vine stripper, the frame, the endless knife belt mounted within said frame and having flat stripping knives provided with beveled cutting edges disposed in the direction of travel of the belt, and a knife drum arranged to move in contact with the knife belt, and having a series of flat knives alternating with those of the knife belt and having beveled cutting edges disposed in the direction of the drum's rotation, and traveling in the same direction as the knives of the belt substantially as set forth.

4. In a vine stripper, the combination with the frame, of an endless knife belt moving horizontally through the frame and having a transverse series of flat stripping knives beveled at one edge, a drum shaft journaled in the frame above the knife belt, an upper knife drum mounted on said drum shaft between the ends of the knife belt and bearing on top of said knife belt, said knife drum comprising spaced drum disks provided with peripheral notches adapted to loosely and positively embrace the ends of the transverse knives of the knife belt, and a series of intermediate stripping knives alternating with the belt knives and connecting the spaced disks in from the circumferences thereof and beveled at one edge, the beveled edges of both the drum and belt knives forming cutting edges disposed in the same direction of travel and traveling together in nearly the same plane, substantially as set forth.

5. In a vine stripper, the combination of frame having bearings, the shafts mounted in said bearings and one of which is provided

at one end with a crank arm, belt pulleys
mounted on said shaft, an open knife belt
arranged to move over said belt pulleys, a
rotating knife drum arranged over and posi-
5 tively connected with said knife belt, a vi-
brating separating screen arranged under the
open knife belt, at an angle and swinging
links for said screen, one of said links being
extended into a crank end loosely engaging
10 said crank arm, and adapted to communicate

motion to the screen from the knife belt sub-
stantially as set forth.

In testimony that I claim the foregoing as
my own I have hereto affixed my signature in
the presence of two witnesses.

MELVIN MAPLES.

Witnesses:

F. H. BRESEE,
DORR GARDNER.