

J. PORTEOUS.
BRUSH CHOPPER.
APPLICATION FILED MAR. 24, 1909.

942,215.

Patented Dec. 7, 1909.

Fig. 1.

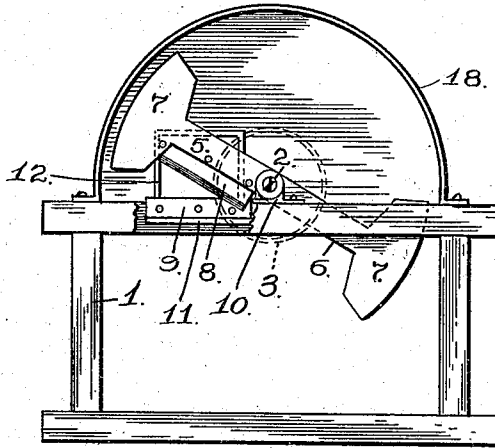


Fig. 2.

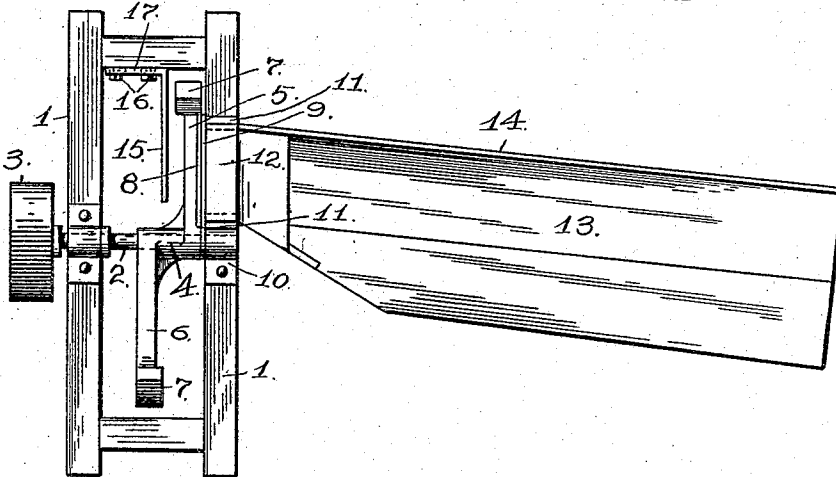
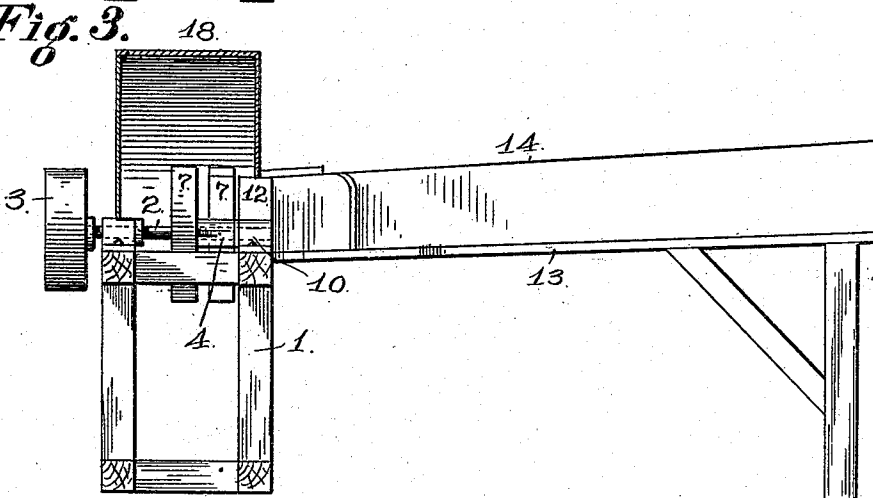


Fig. 3.



WITNESSES.

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UNITED STATES PATENT OFFICE.

JAMES PORTEOUS, OF FRESNO, CALIFORNIA.

BRUSH-CHOPPER.

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Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JAMES PORTEOUS, a citizen of the United States, residing at Fresno, in the county of Fresno and State of California, have invented certain new and useful Improvements in Brush-Choppers, of which the following is a specification.

My invention relates to the class of rotary choppers and is especially intended for chopping or cutting up vineyard or orchard brush, and particularly the prunings from fruit trees.

A machine for this purpose should possess rigidity, capacity, smoothness of operation, accuracy in the relation and coaction of its knives, facility in its cut, means for producing uniformity in the length of the severed pieces and receptiveness of feed leading to the presentation of the brush in the best manner.

To secure these advantages is the object of my invention, which consists in the novel construction, arrangement and combination of parts which I shall now fully describe and claim, by reference to the accompanying drawings in which—

Figure 1 is an end view of the machine, partly broken, the side of the hood being removed to show the interior parts. Fig. 2 is a plan of the machine, with the hood removed. Fig. 3 is a side elevation, with the hood in section.

1 is a frame on which is mounted a shaft 2, preferably driven by power applied to the pulley 3. Fixed upon the shaft is the counterweighted knife-carrier, consisting of a relatively heavy casting with a hub 4, from which extend in opposite directions, the knife-arm 5, and the offset counterbalance arm 6, the ends of both being formed with sector-like weights 7 as shown, said weights, by their shape, assisting the arms, as they pass through the lower arc, in pushing the cut brush to one side and keeping the machine clear. To one face of the arm 5 is secured the knife 8.

9 is the stationary knife located relatively to the knife 8 in such manner that the latter in revolving will pass it in such proximity as to cut through the intervening stick. The knife 9 may be securely fastened in any suitable manner, but as it is of decided importance to maintain the proper relative positions of the two knives to make them cut effectively under the se-

vere strains to which the machine is subjected, and as this can be done only by due attention to rigidity, I form one of the shaft boxes 10 with an extension plate 11, and to this plate I bolt the stationary knife 9, thereby providing a rigid bond which insures the accurate relation and coaction of the knives. Integral with this box and plate, I also deem it best to cast the skeleton frame 12 which forms the entrance to the machine of the feed-guides. These guides consist of a platform 13 and a side-stop 14. The platform 13 is supported at a downward inclination from its outer end to its end where it joins the machine. The side-stop 14 is set in a plane inclined to the plane of the stationary knife.

Bolted to one of the cross pieces of the frame, 1 is a gage-plate 15, which lies beyond the stationary knife, a distance determined by the length of the pieces to be cut. The connection of this gage with the frame is an adjustable one, best formed by passing its securing bolts 16 through slots in its foot 17. Over the working parts is a hood 18.

The operation of the machine is as follows: Having determined upon the length of the pieces to be cut, the gage 15 is properly set. The knife-carrier is then revolved, and a stick of brush is laid upon the sloping platform 13 and held up close to the inclined side stop 14 of the feed guide. It is then pushed in on a downward slope, and inclined laterally to the knives, until it is stopped by the gage-plate 15. It is thereupon cut between the two knives, and dropping down is pushed by the arms and weights 7 to one side, thereby keeping the machine clear without having to rake the cut brush out. This cut, on account of the inclination of the stick, is a beveled one, easier to make and less hard on the machine than if the cut were at right angles. Larger sticks can, therefore, be cut with ease, and the machine will not rack. The knives being firmly fixed with relation to each other cut shearwise without strain and with accuracy. The heavily counterweighted knife-carrier gives smooth running without jar or jerk, and the offset counterbalance arm is not in the way of nor does it interfere with other parts.

The several parts of the machine make a very compact arrangement, and the peculiar construction of knife and counterweight arm does away with the necessity of the ordinary

fly wheel, which offers an undesirable obstruction without the usual housing. An important feature of the invention resides in the provision of but a single knife, thereby giving the same the benefit of the inertia given by the revolution of the full circle, thus adapting the machine to the cutting of sticks of increased diameters and giving the feeder an opportunity to push the sticks in farther and in this way cut them into longer lengths. By offsetting the counterweight arm it will be observed that while the benefits and advantages of a single knife are preserved, this knife will be efficiently counterbalanced and this without the necessity of a separate fly wheel or other counterbalance. Further the counterbalance being offset, it will be spaced from the stationary knife, and will not strike the brush, nor will it strike the gage. Again, by providing two arms, one of which is a knife carrier and the other a counterweight offset so as to not interfere with the operation of the single knife, an integral structure may be provided, thus doing away with parts, and the structure is enable to better stand the strain and the knife parts will be devoid of the usual slipping and breaking incident to keying.

Having thus described the invention, what I claim as new and desire to secure by Letters Patent is:—

1. In a machine of the character described, the combination of a frame, a stationary cutting blade mounted thereon, a coöperating cutting blade, a rotary shaft for the coöperating blade, a carrying arm for the rotary blade mounted on said shaft, and a counter weight arm connected to the first mentioned arm and offset laterally therefrom.

2. A brush chopper comprising a frame, a rotatable shaft mounted thereon, a knife fixed to the frame, a pair of arms projecting in opposite directions and secured to the

shaft and to one another, said arms being offset relative to one another, and a knife carried by that arm adjacent the fixed knife and arranged to coöperate with said fixed knife.

3. A brush chopper comprising a frame, a relatively fixed knife, a rotary shaft, a support carried by the shaft, the support being an integral casting and comprising oppositely extending arms, one of which is offset laterally relative to the other, and a knife carried by that arm next adjacent to the relatively fixed knife.

4. A brush chopper comprising a frame, a relatively fixed knife mounted on the frame, a rotary shaft, an integral casting fixed to the shaft comprising two substantially rectangular arms extending in opposite directions and offset relatively to one another, a knife carried by one only of said arms, and shoes at the ends of the respective arms.

5. In a brush chopper, the combination of a frame, a stationary knife secured to the frame, a rotatable shaft mounted on the frame, a knife projecting to one side only of said shaft and secured thereto, a weighted arm for the knife, a counter weight arm projecting from the opposite side of the arm and secured to the latter, and the two arms being arranged adjacent to one another but in different vertical planes, a guide way having a side flange inclined longitudinally of the guide way for feeding the material at an inclination to the knife, and a gage secured to the frame, to define the length of the pieces to be cut.

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

JAMES PORTEOUS.

Witnesses:

FRANK H. SISSORS,
H. L. JESSEN.