

Dec. 30, 1952

A. E. ANDERSSON

2,623,558

MACHINE FOR REMOVING BARK FROM LOGS

Filed June 10, 1949

3 Sheets-Sheet 1

Fig. 1.

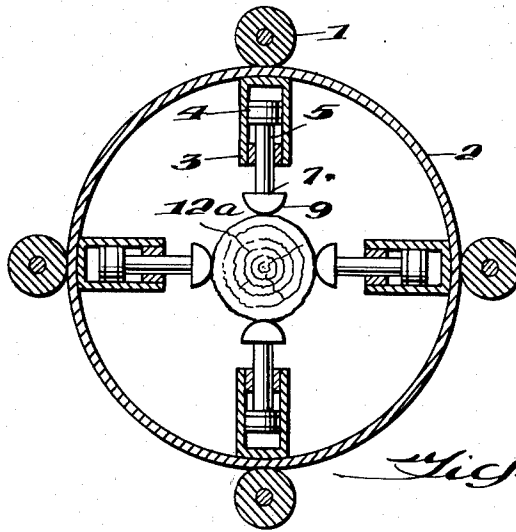


Fig. 2.

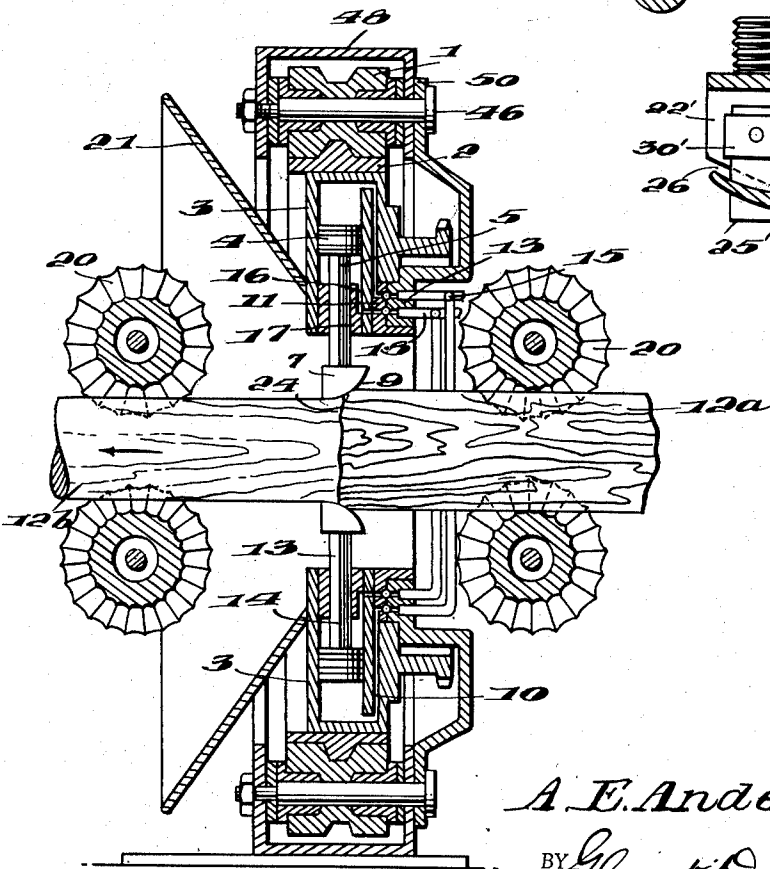
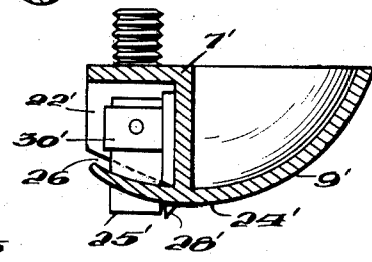


Fig. 3.



INVENTOR

A. E. Andersson

BY *Glenn H. Dowling & Verbo*
ATTORNEYS

Dec. 30, 1952

A. E. ANDERSSON

2,623,558

MACHINE FOR REMOVING BARK FROM LOGS

Filed June 10, 1949

3 Sheets-Sheet 2

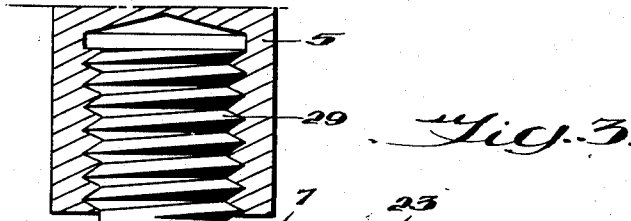


Fig. 3.

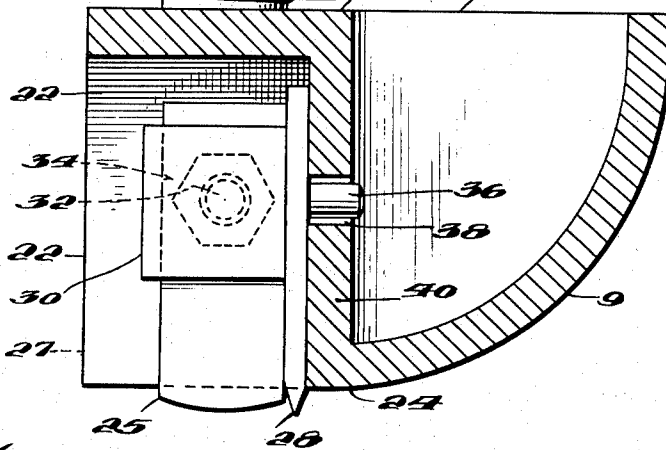


Fig. 4.

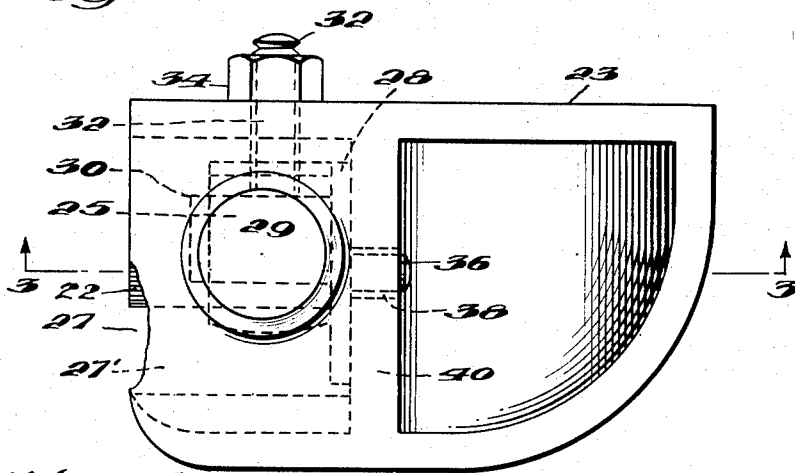
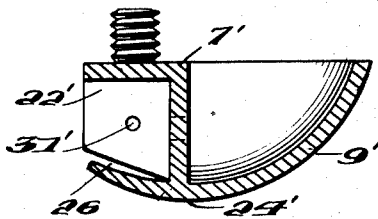


Fig. 7.



INVENTOR

A. E. Andersson

BY *Gascon Downing & Co.*
ATTORNEYS

Dec. 30, 1952

A. E. ANDERSSON

2,623,558

MACHINE FOR REMOVING BARK FROM LOGS

Filed June 10, 1949

3 Sheets-Sheet 3

Fig. 5.

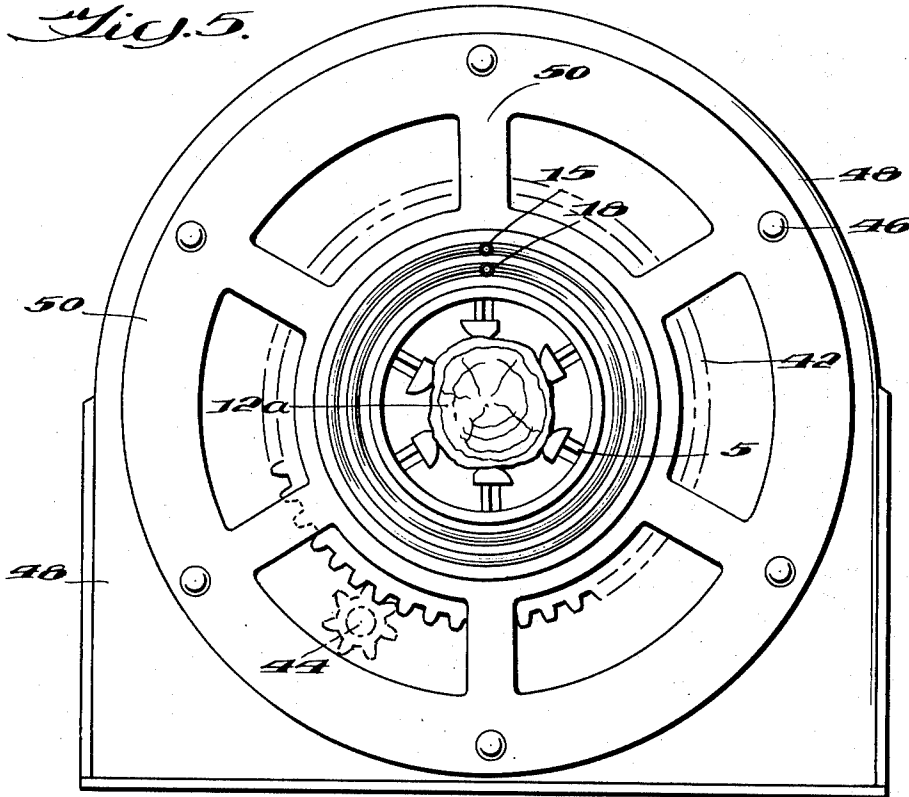
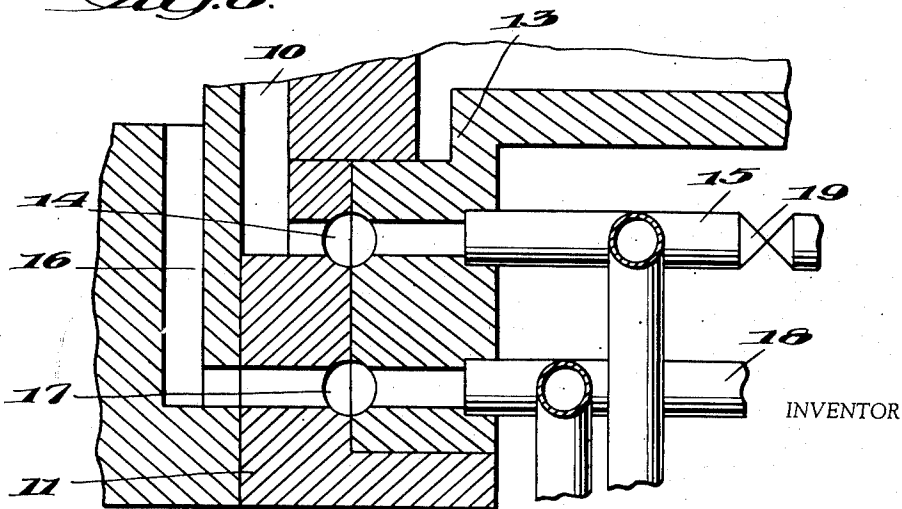


Fig. 6.



BY *A. E. Andersson*
Gilbert Downing Rutledge
ATTORNEYS

UNITED STATES PATENT OFFICE

2,623,558

MACHINE FOR REMOVING BARK FROM LOGS

Axel Erland Andersson, Vargon, Sweden, assignor
to Soderhamns Verkstader Aktiebolag, Soderhamn, Sweden

Application June 10, 1949, Serial No. 98,412
In Sweden June 18, 1948

6 Claims. (Cl. 144—208)

1

The present invention relates to a machine for removing bark from logs.

The machine has for its object to provide an improved hollow head type apparatus carrying pneumatically pressed tools for attaining a ready and thorough removal of bark from logs regardless of whether the logs have different diameters or whether the wood thereof is soft or hard, and even in instances where the logs are crooked or knotted.

Another object of my invention is to make it possible to use friction barking and peel barking at the same time with the benefit of the best qualities of these methods and modifications thereof, thus making it possible to regulate the barking so as to meet very different wishes concerning the final appearance of the log surface.

My apparatus for barking of wooden logs involves a relative turning movement of barking tools in reference to the log, and the feeding of the log forwards in the axial direction while the tools are being pressed towards the log by elastic forces, the elastic forces being effected by compressed fluid pressure—preferably compressed air—within cylinders having operable pistons therein, the fluid pressure being regulable so as to regulate the pressure of the tools in accordance with the degree of the barking difficulties. The barking tools may have a turning movement in reference to the log or vice versa, or both the tools and the log may have turning movements simultaneously.

The log is fed forward in the longitudinal direction. In the plane perpendicularly to the longitudinal axis of the log a suitable number of holders with barking tools are in the preferred embodiment of the apparatus rotated around the axis of the log and pressed towards the log by means of elastic fluid forces, preferably compressed air. The tools of each holder consist of a feeler and of barking tools, the elastic pressure on the feeler being such that the feeling surface is sunk down beneath the surface of the log bark to the vicinity of the wooden surface.

In accordance with the present invention, the primary object consists in the provision of a plurality of rods directed toward the axis of the fed log and on the inner end of each rod a bark removing body rigidly mounted thereon, including a blunt bark removing portion and an inclined feeler portion extending outwardly from the bark removing portion toward the direction of log feed. The shape of the feeler and bark removing portion are such that the bark is removed in accordance with the frictional shearing method.

2

Additionally, as a specific embodiment in connection with the present invention, the bark removing body constitutes a combined tool and tool holder. In this connection one of the tools for each tool holder comprises an edge provided tool working like a planing tool to peel off the bark and bast and the like, remaining after the major portion of the bark has been frictionally sheared off, said planing tool being situated behind the tool operating by friction in the direction of the feeding of the log. If desired, a cutting tool can be attached to each holder for cutting a spiral groove through the bark and underlying substances during the forward movement of the log, the planing tool peeling off the bark and the like along this groove. The feeler on account of an inclined convex feeling surface provided therefore will under regulable elastic pressure follow any irregularities of the log during the forward movement of the log, and make sure that the bark will be removed in such a way so as to meet any demand concerning the final appearance of the log surface.

The invention will now be described with reference to the accompanying drawings in which:
Fig. 1 is a cross-sectional view of an embodiment of the machine illustrated schematically.

Fig. 2 is a longitudinal sectional view of the machine illustrating the invention with barking tools illustrated schematically.

Figs. 3 and 4 illustrate in section and in top plan view respectively, a barking tool in accordance with the invention, Fig. 3 being taken on line 3—3 of Fig. 4.

Fig. 5 is an end view of a slightly modified form of the machine illustrating six barking tools.

Fig. 6 is a partial view on an enlarged scale illustrating pipes and conduits for supplying compressed air to the cylinders of the machine, including portions of the conduits embodied in the machine structure.

Fig. 7 illustrates a slightly modified form of bark removing body with the blades removed, and,

Fig. 8 illustrates the body of Fig. 7, with blades attached.

In the embodiment of the barking machine shown in the drawing the machine consists of a rotatable frame comprising a drum 2 carried by supporting rollers 1, the drum being provided with a suitable number of cylinders 3, for instance four cylinders as shown in Fig. 1 and six as shown in Fig. 5. The cylinders are directed radially inwards or with any desired inclination towards the surface of the log. Said log is shown with an untreated surface portion 12a hav-

3

ing bark, and with a treated portion 12b free from bark. The cylinders are provided with pistons 4, the rods 5 of which each carries at the free end a combined barking tool and tool holder body denoted generally at 7. Said combined tool and holder comprises a first portion 23 acting as a feeler and having a blunt inclined surface 9 facing toward the direction of log feed and a barking portion adjacent to and behind said feeler portion provided with a rounded blunt edge 24 for scrubbing or frictionally shearing the bark of a log. Supported by this combined tool and holder are cutting and shearing blades 28 and 25, respectively, as will be further explained in connection with the description of Figs. 3 and 4.

The pistons 4 and the tools are held in working position under pressure by means of compressed air from a source not shown. This air passes to the corresponding cylinder through a channel 10 from a ring shaped member 11 on the drum 2, against which member is pressed a corresponding stationary ring member 13. In the surfaces of these rings thus sliding against each other during the rotation of the drum, there is a ring shaped channel 14 in communication with the cylinder channel 10 as well as with an inlet pipe 15 from the air source. For moving the pistons 4 backwards if desired, there is also a channel 16 opening into the back room of each of these cylinders from another ring shaped channel 17 in said sliding surfaces in communication with another inlet pipe 18 from the air source.

Fig. 6 illustrates in enlarged view the various channels and pipes provided for admitting air into the cylinders.

A pressure reducing valve 19 is inserted in the air pipe 15 so as to regulate the air pressure on the pistons 4 and thus to regulate the pressure of the tools against the log to the most suitable pressure for the barking of different kinds of logs. The forward feeding of the log in the direction of the arrow in Fig. 2 is obtained by means of two pairs of rollers 20. These feeding rollers—the distance between each other can be regulated in known manner—can be pressed against the log in any suitable manner. They are, however, preferably brought into action by air pressure from the air source mentioned above. On account of the small width of the drum 2, the axial distance between the two pairs of feeding rollers can be made extremely short, for instance about 24 inches, which is of great advantage when the logs to be barked are bent, as the curved axis of such a log in said short distance can not deviate much from the rotation axis. The bark removed from the log can be thrown out into a hollow cone 21 to be sucked off by a ventilator.

With reference to Figs. 3 and 4, there is on the top of the combined tool and tool holder a bolt 29 which is screwed into the end portion of the piston rod 5 for attaching the combined tool and holder to the rod. The peeling tool 25 consists of a steel plate having a sharpened edge. This plate is held by means of a locking body 30 and supported by a bevel surface in the backside wall of the combined tool and holder. The body 30 is provided with a bolt 32 which passes through a hole in the backside wall 22 of the combined tool and holder and is provided with a nut 34, by means of which the blocking body 30 will be pressed against the plate 25 to hold the plate in fixed position. The cutting or

4

grooving tool 23 consists of a steel plate having a sharpened edge and provided with a guiding bolt 36 entering into the hole 38 in the cross wall 40 of the combined tool and holder. By means of the bolt 32 this plate 23 will be fixed at the same time as the plate 25.

In Fig. 5 showing an end view of the machine modified as to the number of bark removing bodies, 12a indicates the log and 5 the piston rods of the tools. The drum 2 is provided with a toothed rim 42 which is in mesh with a pinion 44 driven by a motor not shown. Four supporting rollers 1 for the drum 2 are shown in Figs. 1 and 2 as being journaled on bolts 46 in a stationary housing 48, while six such bolts are indicated in the Fig. 5 embodiment. By these bolts 46 is also attached a supporting member 50 which is made in one piece with the ring member 13.

In connection with the tool and tool holder illustrated in Fig. 4, the body denoted generally at 7 on its under surface is provided with a slot or gap 27' through which the strata underlying the bark passes as it is sheared off by the blade 25, the sheared off substances passing laterally out of the hollow part of the body 7 through the open end 27. The wall, denoted as back side wall 22, is inclined and constitutes a surface against which the tool blade comprising the tool 25 is held by means of the locking body 30. The locking body 30 will also hold in position the blade 23 against the cross wall or web 40 of the body 7.

It is therefore clear that the present invention provides in a barking machine and in combination with means for feeding a log axially of its length while restraining the same against rotation around its axis constituted by the rollers 20 on opposite sides of the log and above and below the same, in front of and behind the rotatable frame or drum concentrically disposed around the path of movement of the log, a plurality of rods mounted on and movable with the frame. The rods, directed inwardly of the frame, have their inner ends terminating in spaced relation with respect to the axis of a log being fed. Specifically, a plurality of centripetally directed cylinders extend inwardly of the drum having pistons therein and the piston rods constituting the rods. A bark removing body is rigidly carried at the inner end of each of the rods. This body includes a blunt bark removing portion disposed in substantial continuation of the axial extent of the rod. In other words, that portion of the rod directed toward the axis of the log being fed has the blunt bark removing portion as a continuation thereof. The bark removing body further includes an inclined feeler portion extending outwardly from the bark removing portion and facing toward a log being fed. Means are provided applying pressure to the rods to maintain the surfaces of the bark removing and feeler portions in contact with the log being fed with sufficient intensity regardless of irregularities in log contour and bark to disrupt the frictional adherence of bark to underlying wood strata without exerting deleterious compressive action on said wood strata to frictionally remove the bark from the underlying wood.

Fig. 7 illustrates a slightly modified form of bark removing body in which the feeler surface 9' and the bark removing surface 24' are both curved transversely and longitudinally with respect to the axis of a fed log. In this view the cutter blades have been removed, the aper-

5

ture 31' being provided in the rear wall 22' of the body 7' to receive a bolt similar in nature to the bolt 32 illustrated in Figs. 3 and 4 carried by the locking body similar to the locking body 30 in said figures. The slot denoted at 26 in Fig. 7 denotes the opening in the bottom of the body 7' through which the blade projects, it of course being understood that the face of the rear wall 22' is suitably inclined so that the blade, when applied, lies securely thereagainst. In Fig. 3, the blades 25' and 28' are shown mounted on the bark removing body of Fig. 7, by locking block 33'.

The specific means disclosed for applying the pressure constitute the compressed air actuated pistons, it being clear that the channels or conduits 14 and 17 are constituted by concentrically arranged grooves respectively formed in coinciding relationship on a portion of the side surfaces of the drum 10 and a portion of the stationary annular or ring member 13.

It has been shown in practical use that the elastic air cushion in the cylinder is of an extreme advantage by carrying through the barking in the way described above. When the feeler following the unevennesses of the log drives the piston to a reciprocating movement the air cushion guides the movement in a more soft and convenient way than if for instance a spring is used as an elastic organ. Also the regulation of the pressure variations can be effected more easily and conveniently with cheap and simple air regulating implements during the rotation of the drum.

I do not wish to be limited to the precise details of construction set forth, but desire to avail myself of such variations and modifications as come within the scope of the appended claims.

I claim:

1. In a barking machine and in combination with means for feeding a log axially of its length while restraining the same against rotation around its axis, a rotatable frame concentrically disposed around the path of movement of the log and through which the log passes, a plurality of rods mounted on and movable with the frame around the log as the latter passes therethrough, said rods extending inwardly of the frame toward and having their inner ends terminating in spaced relation with respect to the axis of a log being fed, a bark removing body rigidly carried at the inner end of each rod, said body including a blunt bark removing portion and an inclined feeler portion extending outwardly from said bark removing portion and toward the direction of log feed, means mounting the rods for movement toward and away from the axis of a log being fed, and means for moving the rods toward a log being fed while applying pressure thereto to maintain the surfaces of said bark removing and feeler portions in contact with a log being fed with sufficient intensity regardless of irregularities in log contour and bark to disrupt the frictional adherence of bark to underlying wood strata to frictionally remove the bark from the underlying wood.

2. In a barking machine as defined in and by claim 1, said frame constituting a rotatable drum, a plurality of centripetally directed cylinders carried by said drum, pistons movable within said

6

cylinders, said rods constituting rods for the pistons, and means for admitting a pressure fluid into the cylinders on opposite sides of the pistons.

3. In a barking machine as defined in and by claim 2, and said drum including a side surface having concentrically disposed grooves therein, an annular stationary member pressed against said side surface and having concentric grooves therein coinciding with said first mentioned grooves and together therewith constituting spaced concentric conduits, means providing communication between said conduits and the cylinders on opposite sides of the pistons, and means for controllably admitting pressure fluid to said conduits, said conduits and said two last mentioned means constituting the means for admitting a pressure fluid into the cylinders.

4. In a barking machine as defined in and by claim 1, and said bark removing body constituting a combined barking tool and tool holder and including means for mounting a cutting tool thereon.

5. In a barking machine as defined in and by claim 1 and said bark removing body having its log engaging surfaces curved transversely and longitudinally with respect to the axis of a fed log.

6. A barking machine comprising in combination a rotatable drum through which a log is axially fed, tool mounting means including rods extending centripetally of the drum, means for advancing said rods towards the center of the drum, a combined barking tool and tool holder carried by the outer end of each of the rods for removing the bark from the log as it is axially fed through the drum, each of said combined barking tools and tool holders comprising an inclined curved surface facing towards an oncoming log and acting as a feeler, and a blunt barking portion adjacent to said feeler surface for removing the bark from the log by means of a scrubbing or frictional shearing action; and a cutting tool and a peeler tool for respectively grooving and peeling off the bark and bast remaining after said scrubbing or frictional shearing action, said cutting tool and said peeler tool being rigidly connected to said combined barking tool and tool holder.

AXEL ERLAND ANDERSSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
397,114	Dolsen	Feb. 5, 1889
1,243,294	Hruska	Oct. 16, 1917
1,815,573	McManis	July 21, 1931
1,941,002	Harrison	Dec. 26, 1933
2,027,173	Jackson	Jan. 7, 1936
2,477,922	Emery	Aug. 2, 1949
2,576,967	Pauley et al.	Dec. 4, 1951

FOREIGN PATENTS

Number	Country	Date
90,080	Germany	Jan. 2, 1897