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G. S. & C. J. HERRICK.
WILLOW STRIPPING MACHINE.
APPLICATION FILED APR. 12, 1909.

Patented May 31, 1910.

4 SHEETS—SHEET 1.

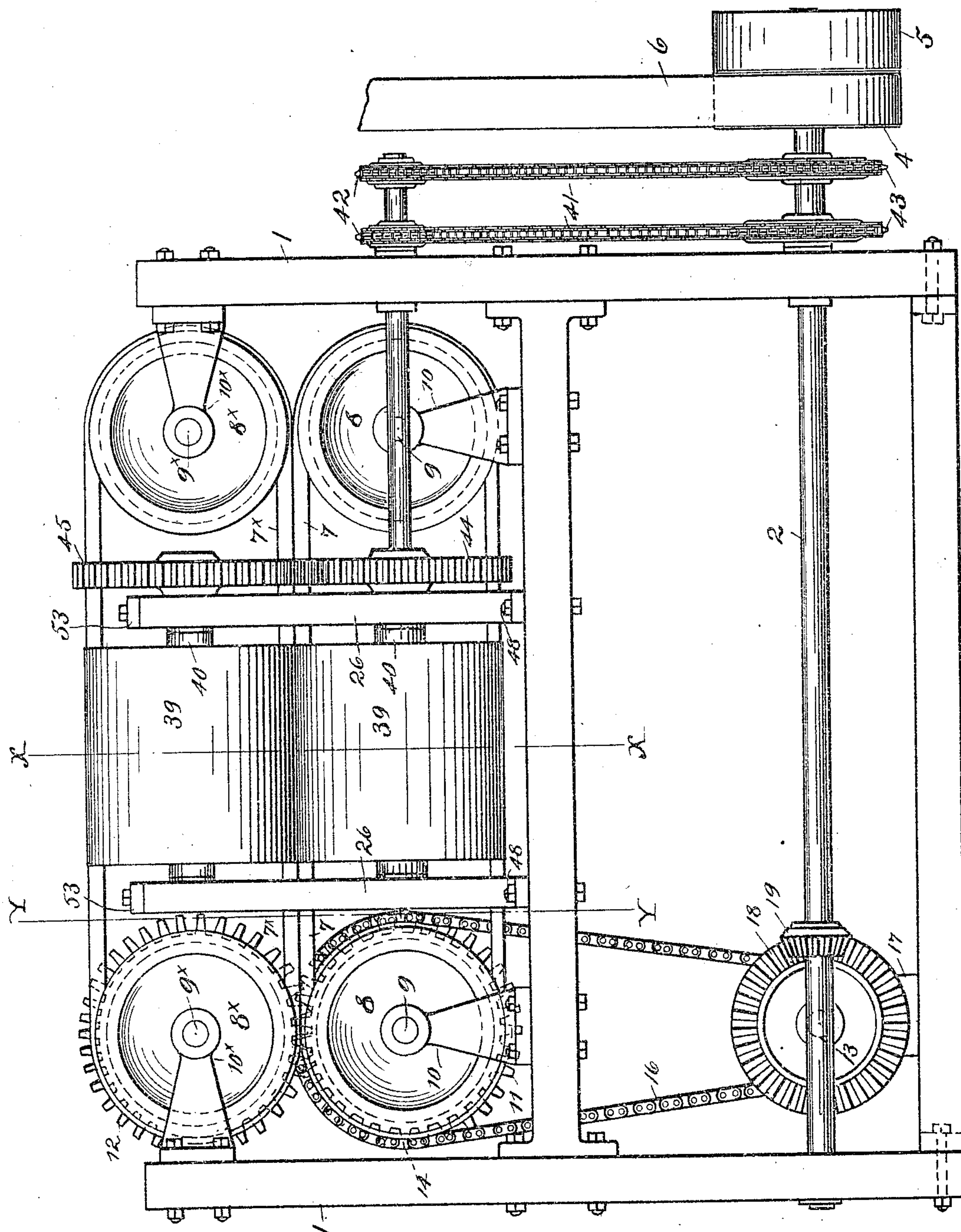


Fig. 1

WITNESSES:
Chas. H. Hughes.
Wm. H. Meier Jr.

INVENTORS:
George S. Herrick + Charles J. Herrick
BY E. Laessle
Their ATTORNEYS.

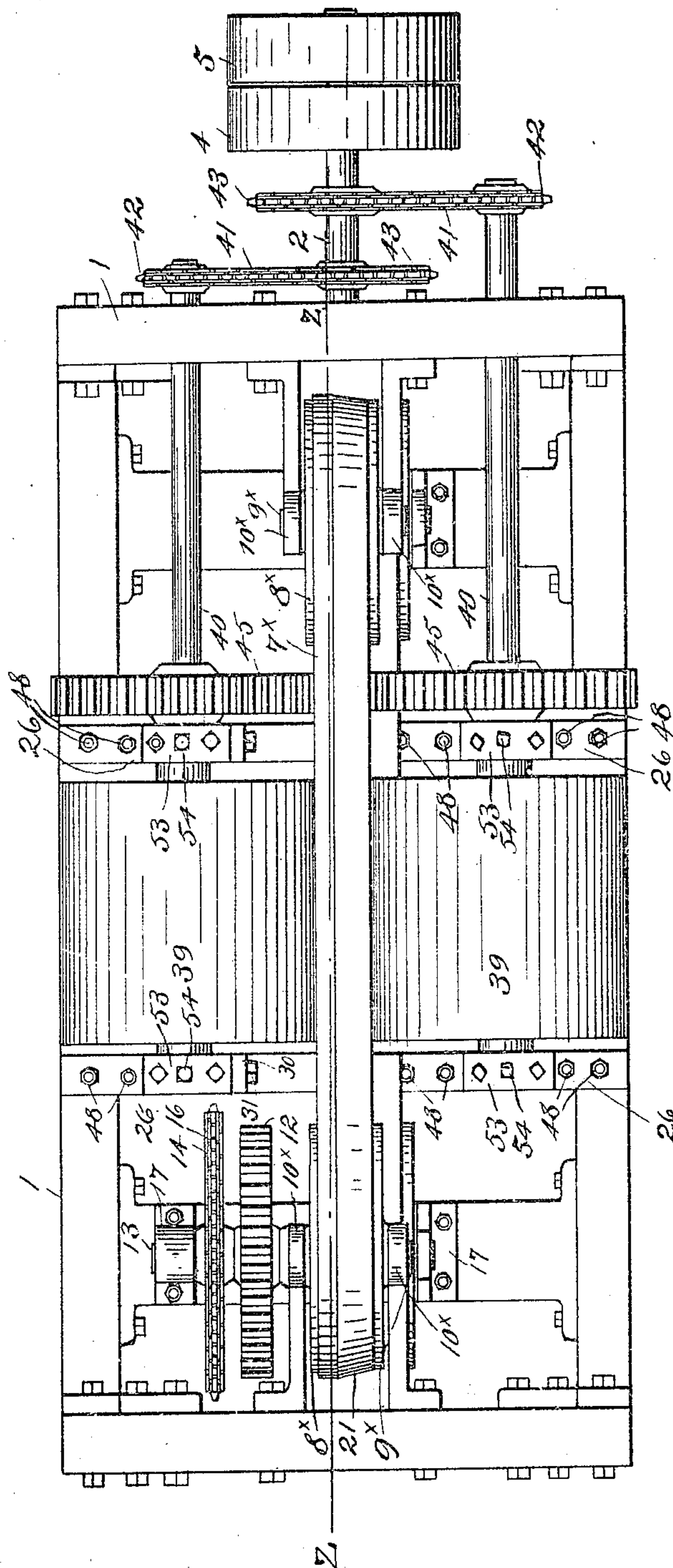
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4 SHEETS—SHEET 2.

Fig. 2



WITNESSES:

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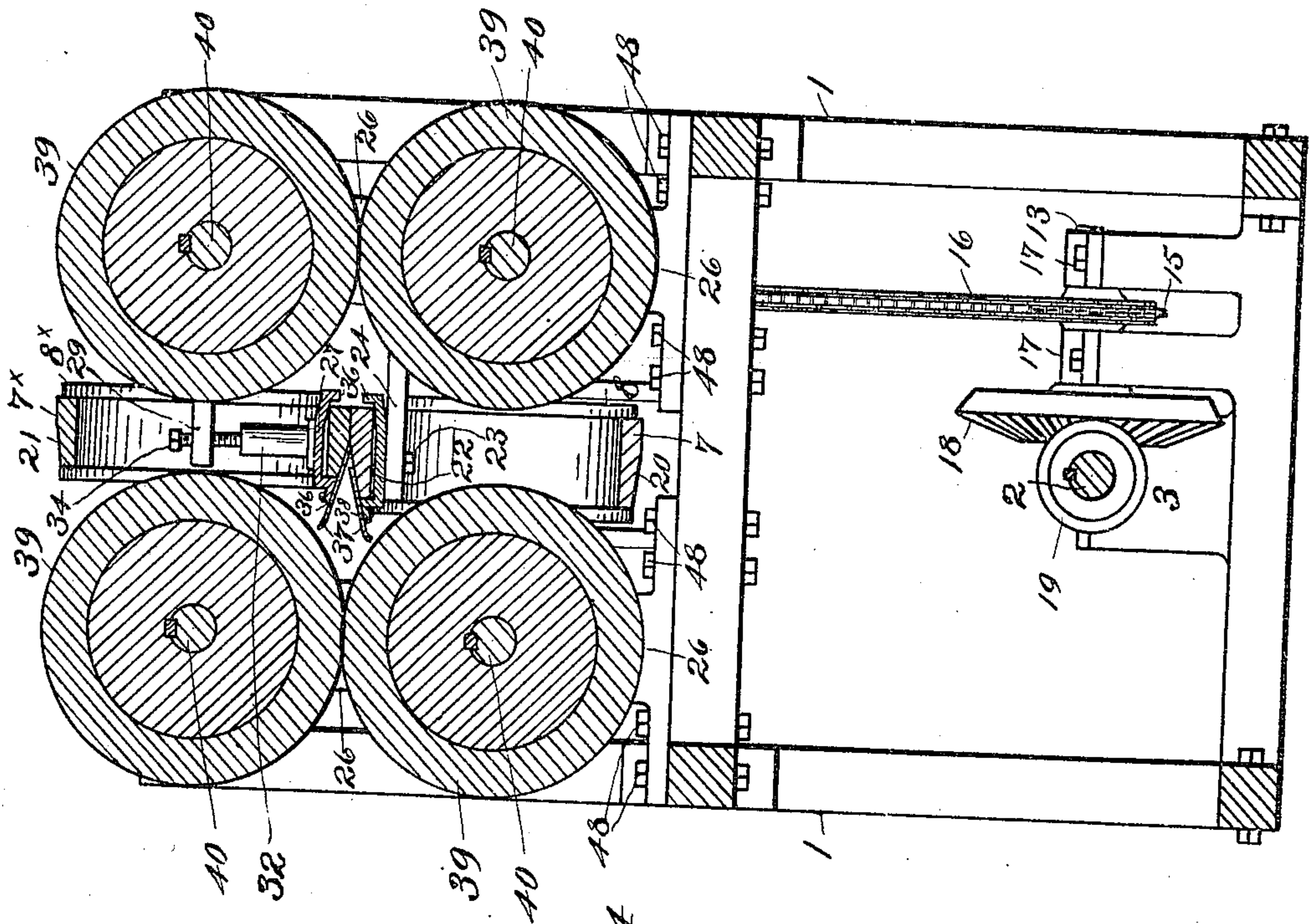
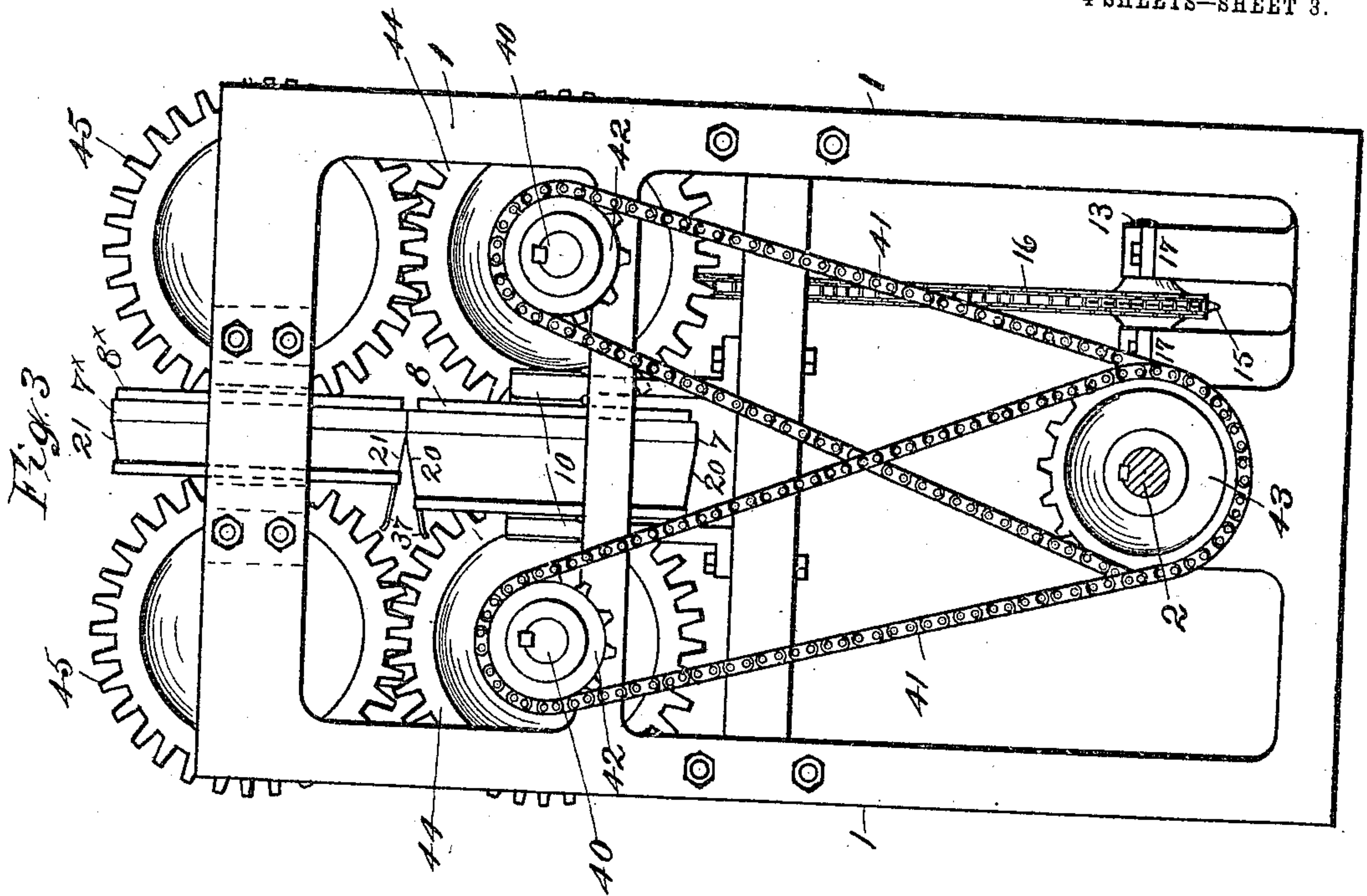
Wm. H. Meier Jr.

INVENTORS:

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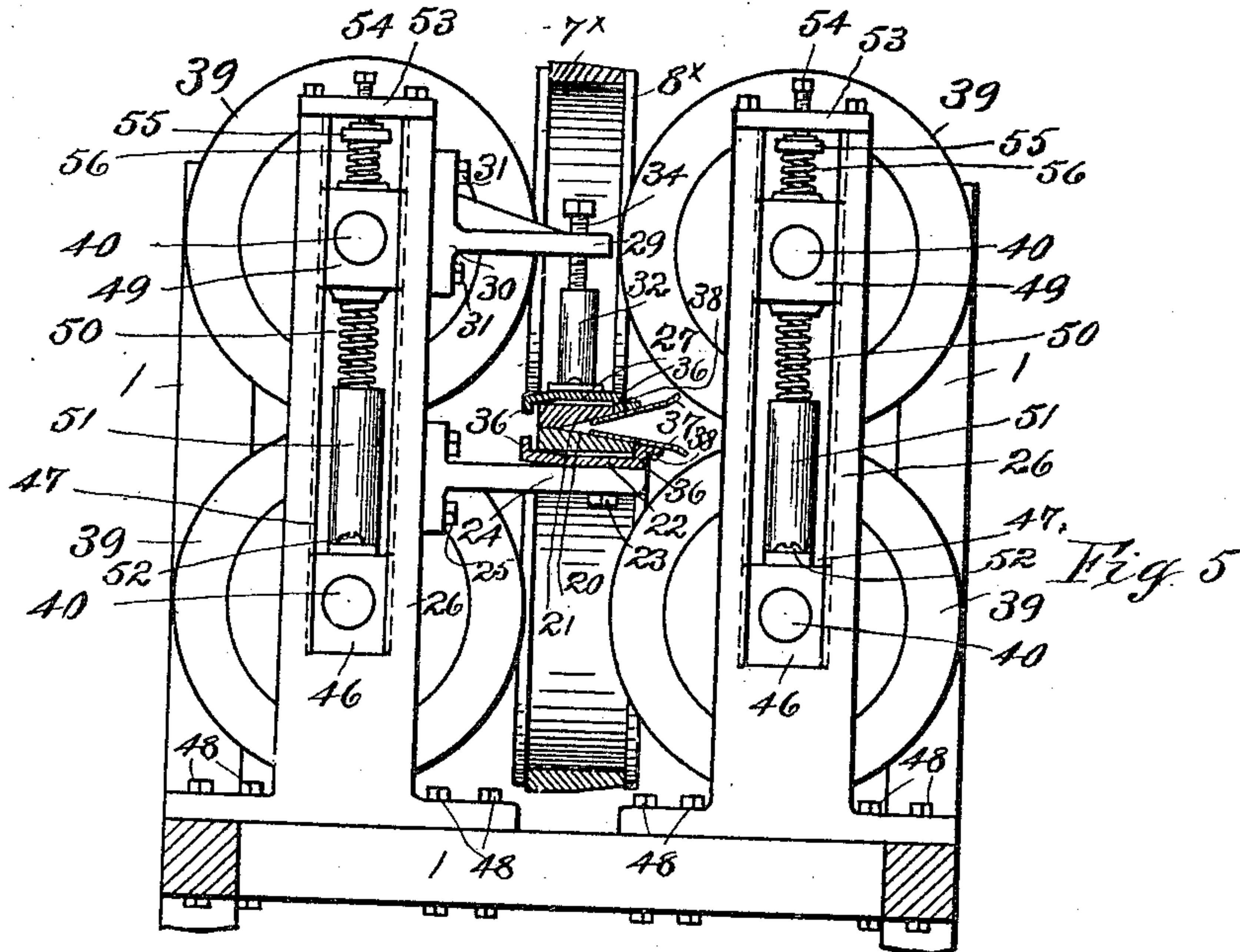
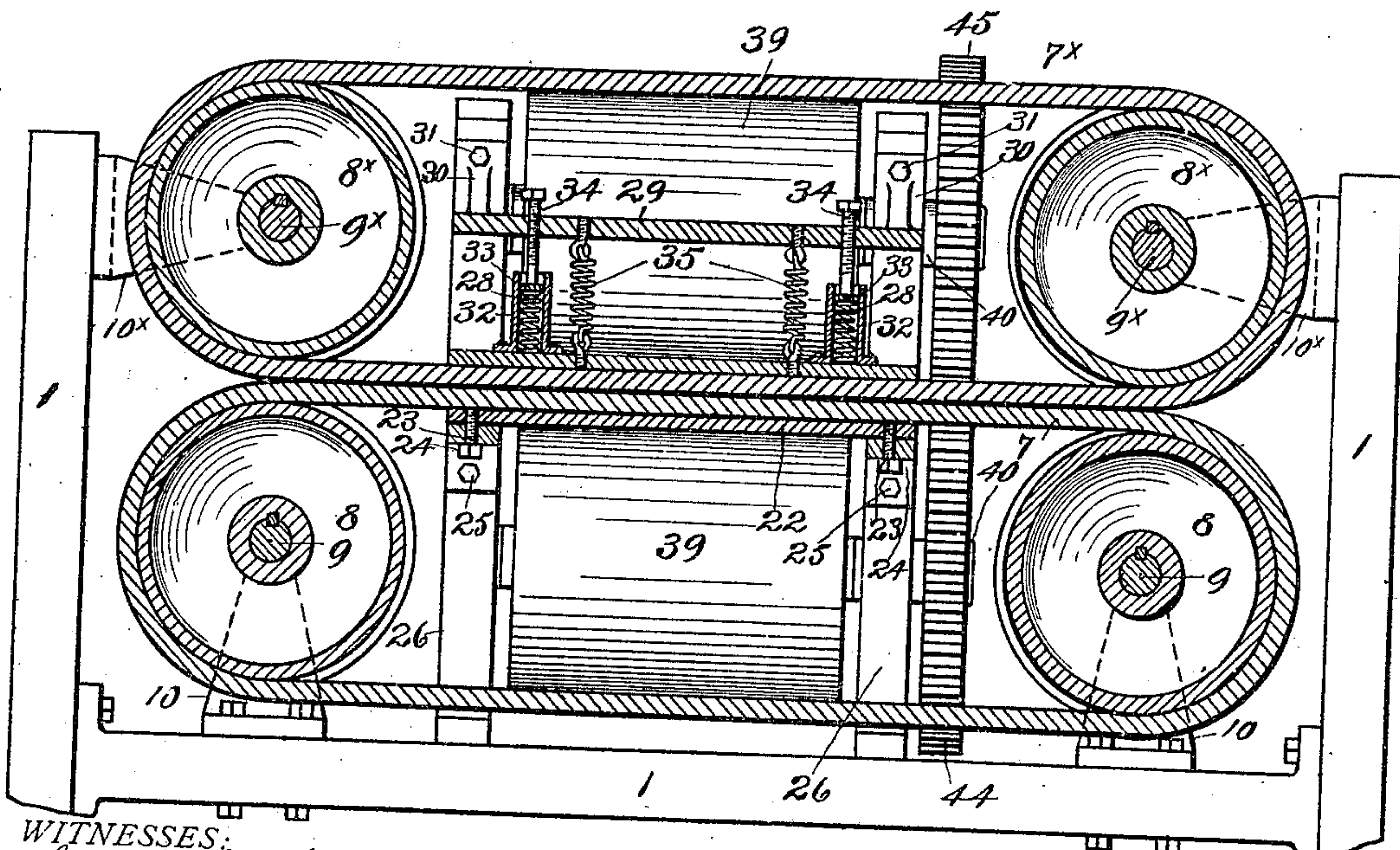


Fig. 6



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UNITED STATES PATENT OFFICE.

GEORGE S. HERRICK AND CHARLES J. HERRICK, OF SYRACUSE, NEW YORK.

WILLOW-STRIPPING MACHINE.

959,741.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed April 12, 1909. Serial No. 489,384.

To all whom it may concern:

Be it known that we, GEORGE S. HERRICK and CHARLES J. HERRICK, citizens of the United States, and residents of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Willow-Stripping Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to machines which are designed to remove the bark from willows whereby said willows may be woven into baskets and other articles, and it has special reference to the class of machines embodying a pair of parallel traveling belts between which the willows are passed by means of a suitable feeding device, said belts coöperating with the feeding device to strip the willows.

The chief object of this invention is to produce a willow-stripping machine which will have greater capacity and shall be more efficient and reliable in its operation, and to provide coöperating feeding and stripping devices which shall be capable of automatic adjustment to compensate for the variation in thickness of the willows to be stripped.

A further object of the invention is to produce a machine which shall be simple and compact in construction whereby all of its moving parts may be completely housed if required, so as to protect the person in charge from injury by his or her clothes being caught.

Other objects of the invention will be apparent from the novel arrangement and combination of the component parts of the machine hereafter fully described and claimed.

In the accompanying drawings Figure 1 is a front elevation of the willow-stripping machine constructed in accordance with our invention; Fig. 2 is a plan view of the same; Fig. 3 is an end view of the machine minus the driving pulley and loose pulley; Figs. 4 and 5 are vertical sectional views taken on the dotted lines $x-x$ and $y-y$ respectively in Fig. 1; and Fig. 6 is a longitudinal section on the dotted line $z-z$ in Fig. 2.

Like numerals of reference indicate like parts in the several views of the drawings.

—1— denotes the frame of the machine which may be of any suitable style or construction.

—2— denotes the main shaft which is journaled in suitable boxes —3—3— mounted on the base of the frame, to which shaft are provided the usual driving pulley —4— and loose pulley —5—, and —6— is the driving belt which may be shifted from one pulley to the other by any of the well known devices employed for this purpose, (not necessary to show). The stripping means comprises essentially a pair of horizontal belts —7—7*— arranged in the same vertical plane with the lower portion of the upper belt traveling in contact with upper portion of the other belt which belts receive the willows transversely between them. Said stripping-belts —7—7*— run on grooved wheels —8—8—8*—8*— which are keyed or otherwise secured to shafts 9—9—9*—9*— journaled in suitable boxes 10—10—10*—10*— fastened to the frame 1—, motion being transmitted from one of the lower shafts —9— to the adjacent upper shaft —9*— by gears —11—12— secured to the respective shafts. This lower shaft —9— is connected to a counter-shaft —13— by means of sprocket-wheels —14—15— secured to the respective shafts and a chain —16—, so as to drive the shaft —9— at a 1 to 2 ratio. Said counter-shaft —13— is journaled in suitable boxes —17—17— secured to the base of the frame and is driven by means of a bevel-gear —18— secured thereto and meshing with a bevel-pinion —19— secured to the main shaft —2—. We prefer to gear the shaft —13— to the shaft —2— at a 4 to 1 ratio, and thus drive the stripping belts —7—7*— at comparatively low speed.

To allow the butt-end of a willow to be readily inserted transversely between the stripping-belts 7—7*— we bevel the outer or contacting faces of said belts approximately from the center of their widths toward the front or feed-side and preferably make the lower belt wider than upper belt. By thus beveling the said belts, two converging surfaces are obviously produced on the respective belts as indicated at —20—21— and more clearly illustrated in Figs. 4 and 5 of the drawings. To normally maintain the stripping portions of the belts in intimate contact, we provide the lower belt —7— with a bed-plate —22— fastened by means of bolts —23—23— to brackets —24—24— attached by bolts —25—25— to the standards —26— which support the willow feeding de-

vices which devices will be shortly explained. Longitudinally over the stripping-portion of the upper belt —7*— is provided a plate —27— which presses the said belt on to the lower belt. This presser-plate —27— is sustained yielding on the belt —7*— by means of spiral-springs —28—28— interposed between said plate and a parallel bar —29— arranged thereabove, which latter is secured to or formed integral with brackets —30— fastened to the aforesaid standards —26— by means of bolts —31—31—. These springs are preferably disposed in tubular posts —32—32— fastened to the top of the plate —27— and each bears with its opposite ends against the plate and a collar —33— secured to the lower end of a vertical adjusting-screw —34— working in the bar —29—. By means of said screws the tension of the springs can be regulated so as to cause the plate —27— to press the belt —7*— with greater or less force upon the lower belt —7— as the apparent average thickness of the willows to be stripped may require, to obtain the best results. The plate 27— and bar 29— are connected by spiral-springs —35—35— which serve to draw the plate away from the belt —7*— when the tension of the aforesaid springs on the plate is decreased. To sustain the stripping portions of the belt laterally we provide the plates —22— and —27— with guides consisting of flanges —36—36— formed at the longitudinal edges of said plates as clearly illustrated in Figs. 4 and 5 of the drawings.

To insure the entrance of the butt-end of the willow between the stripping-belts and to protect the beveled surfaces of the belts from injury by contact with sharp edges in protuberances on the willow we provide two guards —37—37— consisting preferably of thin steel plates arranged correspondingly with said surfaces to partly cover the same. These guard-plates are secured by means of screws —38—38— to the flanges —36—36— on the bed-plate and presser-plate and the forward edges of said guard-plates are deflected from each other.

The willow-feeding means consists of two pairs of parallel rubber-faced rollers —39—39— of uniform size disposed at opposite sides of the belts —7—7*, the rollers of each pair being keyed or otherwise secured to shafts —40—40— arranged in the same vertical plane and at right angles to the shafts of the pulleys, between which pairs of rollers the butt-ends of the willows are introduced. The shaft of each of the lower feed-rollers is rotated by means of a chain —41— running on sprocket-wheels 42—43 secured to said shaft and main shaft —2— respectively, the relative sizes of said sprocket-wheels being such as to drive the rollers at a 2 to 1 ratio. Motion is transmitted from each lower-feed roller to the

adjacent upper feed-roller by means of gears —44—45— fastened to the respective roller-shafts as more clearly shown in Fig. 3 of the drawings. The shafts of the lower feed-rollers are journaled in suitable boxes —46—46— rigidly supported in vertical slots —47—47— formed in the standards —26—26— hereinbefore referred to, said standards being fastened to suitable parts of the frame —1— by means of bolts —48—48—. The shafts of the upper feed-rollers are journaled in similar boxes 49—49— disposed longitudinally movable in the slots —47—47— of the standards. To allow the said upper rollers to yield to compensate for the variation in the sizes of the willows being fed, we support the journal-boxes —49—49— on the upper ends of spiral-springs —50—50— which rest with their opposite ends on posts —51—51— secured upon the lower journal-boxes —46—46— by bolts —52—52—. The slots —47—47— preferably extend through the upper ends of the standards to allow the journal-boxes to be readily applied to and removed from the standards. At the upper ends of the standards are disposed horizontal bars —53—53— secured by means of bolts and extending across the slots. To said bars are applied vertical screws —54—54— bearing upon circular-shaped plates —55—55—, between which plates and aforesaid journal-boxes —49—49— are interposed spiral-springs —56—56—. By the described arrangement of screws and springs the upper feed-rollers are allowed to yield for the purpose stated.

By providing the front feed-rollers with faces of rubber having the proper degree of elasticity, the bark of the willows is split or cracked throughout the length thereof, and by driving the rollers at a very high speed in relation to that of the traveling belts —7—7*— the bark will be completely stripped from the willow without danger of injury to willow.

What we claim as our invention is:—

1. In a machine for removing the bark from willows, the combination of a pair of stripping-belts traveling in contact, means for receiving the willows endwise to crack the bark and to feed the willows transversely between the stripping-belts, and mechanisms for driving said belts and operating the combined bark-cracking and feeding means as set forth.

2. In a machine for removing the bark from willows, the combination of two continuous horizontally moving flexible stripping members sustained yieldingly in contact, a pair of rollers disposed at one side of the stripping-members and adapted to receive the willows endwise therebetween to crack the bark and feed the willows between the stripping members, a pair of auxiliary

rollers disposed at the opposite side of the stripping-members for drawing the stripped willows therefrom, and mechanisms for operating the said stripping-members and rollers as set forth.

3. In a machine for removing the bark from willows, the combination of two stripping-belts traveling in contact and having their contacting faces oppositely beveled, means for feeding the willows between the said belts, and at right angles to the travel thereof, mechanism for driving the stripping-belts at a comparatively low speed, and mechanism for operating the feeding means at a relatively high speed as set forth.

4. In a machine for the purpose stated, the combination of stripping-means comprising a pair of parallel horizontal belts traveling in contact, two pairs of feed rollers supported at opposite sides of the contact portions of the stripping-belts and having their axes disposed parallel with the belts, means for driving said belts at a slow speed, and means for rotating the rollers at a comparatively high speed as set forth.

5. In a machine for the purpose stated, the combination of stripping-means comprising a pair of parallel horizontal slow traveling belts disposed in the same vertical plane and in contact, two pairs of high-speed rollers disposed at opposite sides of the contacting portions of the belts to feed the willows transversely between the belts, one roller of each pair being yieldingly supported, and yieldingly sustained means pressing one belt against the other belt as set forth.

6. In a machine for the purpose stated, the combination of a pair of parallel horizontal stripping-belts disposed in the same vertical plane and traveling in contact, pulleys carrying said belts, gears transmitting motion from one lower pulley to the adjacent upper pulley, mechanism for driving said lower pulley, two pairs of feed-rollers supported at opposite sides of the stripping-belts and having their axes disposed at right angles to the axes of the pulleys, gears connecting the rollers of each pair, and mechanism for operating said gears as set forth.

7. A machine for stripping willows comprising a main driving shaft, a pair of stripping-belts traveling in contact and having their contacting faces oppositely beveled, mechanism transmitting motion from the shaft to the stripping-belts, two guard-plates extending partway across the beveled faces of the belts, a pair of rollers for feeding the willows between the guard-plates and between the stripping-belts, a second pair of rollers for drawing the stripped willows from the belts, and separate and correspondingly geared mechanisms transmitting motion from the shaft to the two pairs of rollers as set forth.

8. A willow-stripping machine comprising a pair of parallel horizontal stripping-belts traveling in contact one above the other and having their contacting faces oppositely beveled, means for feeding the willows between said belts, a pair of guard-plates between which the willows are passed, a bed-plate disposed under the lower belt, a presser-plate supported yieldingly over the upper belt, and means supporting the said guard-plates on the bed-plate and presser-plate respectively as set forth.

9. A willow stripping machine comprising two cooperating oppositely beveled stripping members disposed one above the other, means operating said members, a stationary bed upon which the lower stripping member is adapted to bear, an adjustable and yieldingly supported presser-plate bearing upon the upper stripping member, guard-members disposed adjacent to the beveled portions of the stripping members and supported by the bed and presser-plate, and means for feeding the willows through the guard means to insure their passage between the stripping members as set forth.

10. A willow-stripping machine comprising a pair of parallel horizontal stripping-belts traveling in contact one over the other, means for feeding the willows between said belts, a bed-plate supported under the lower belt, and a yielding presser-plate supported above the upper belt, said plates being formed with flanges for guiding the belts as set forth.

11. A machine for the purpose stated, comprising a pair of parallel horizontal stripping-belts arranged in the same vertical plane and traveling in contact with each other, feeding means at one side of the belts for presenting the willows transversely to the belts, a bed supported below the stripping-portion of the lower belt, a yieldingly supported presser-plate adapted to bear upon the stripping-portion of the upper belt, guides for sustaining said stripping-portions against lateral movement, and guards supported at the front sides of said stripping-portions of the belts between which guards the willows are fed, as set forth.

12. A machine for the purpose stated, comprising a pair of parallel horizontal stripping belts, arranged in the same vertical plane and traveling in contact with each other, and pulleys supporting said belts, said belts having their outer faces beveled correspondingly to form two converging surfaces to facilitate the entrance transversely of the willows therebetween, as set forth and shown.

13. A willow stripping machine, comprising a frame, a pair of parallel horizontal stripping belts arranged in the same vertical plane and traveling with adjacent portions in contact, said belts having their

contacting faces correspondingly beveled,
rollers for feeding the willows endwise
between the belts, two standards mount-
ed on the frame, a pair of bracket-arms
5 fastened to one of the standards, a bed-plate
supported on one bracket-arm and disposed
under the stripping-portion of the lower
belt, a spring-pressed plate yieldingly sup-
ported on the other bracket-arm and bearing
10 upon the stripping-portion of the upper belt,
belt-guides on said plates, and a pair of di-
vergent guard-plates supported at the front

edges of the plates and extending length-
wise thereof and adapted to lie on the bev-
eled faces of the belts, a pair of rollers dis- 15
posed adjacent to the guard-plates for feed-
ing the willows between the belts, and a
second pair of rollers disposed to draw the
stripped willows from the belts as set forth.

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Witnesses:

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