

(No Model.)

2 Sheets—Sheet 1.

F. H. & A. E. STEARNS.
MACHINE FOR ROSSING BARK.

No. 515,537.

Patented Feb. 27, 1894.

Fig. 1.

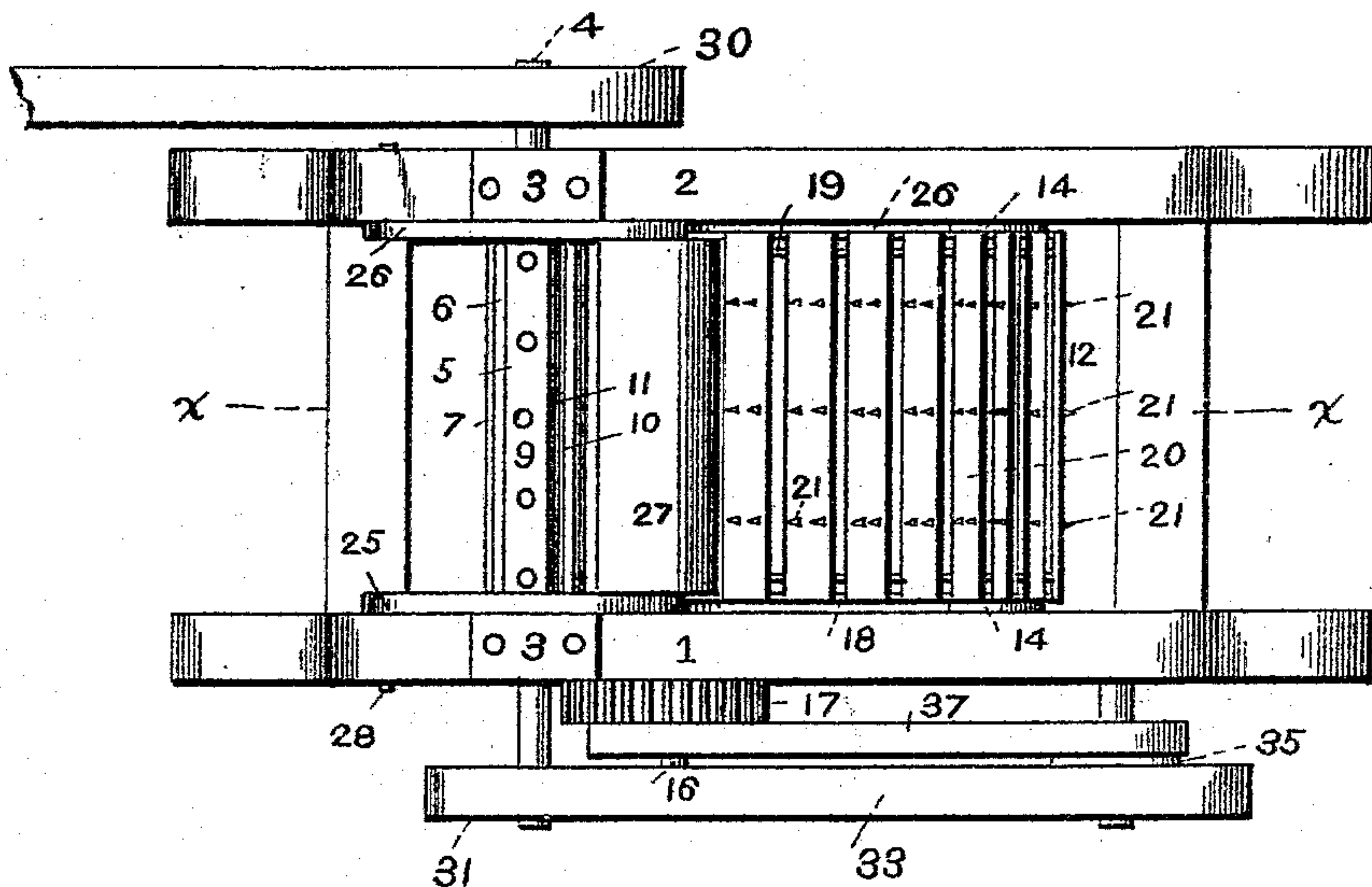
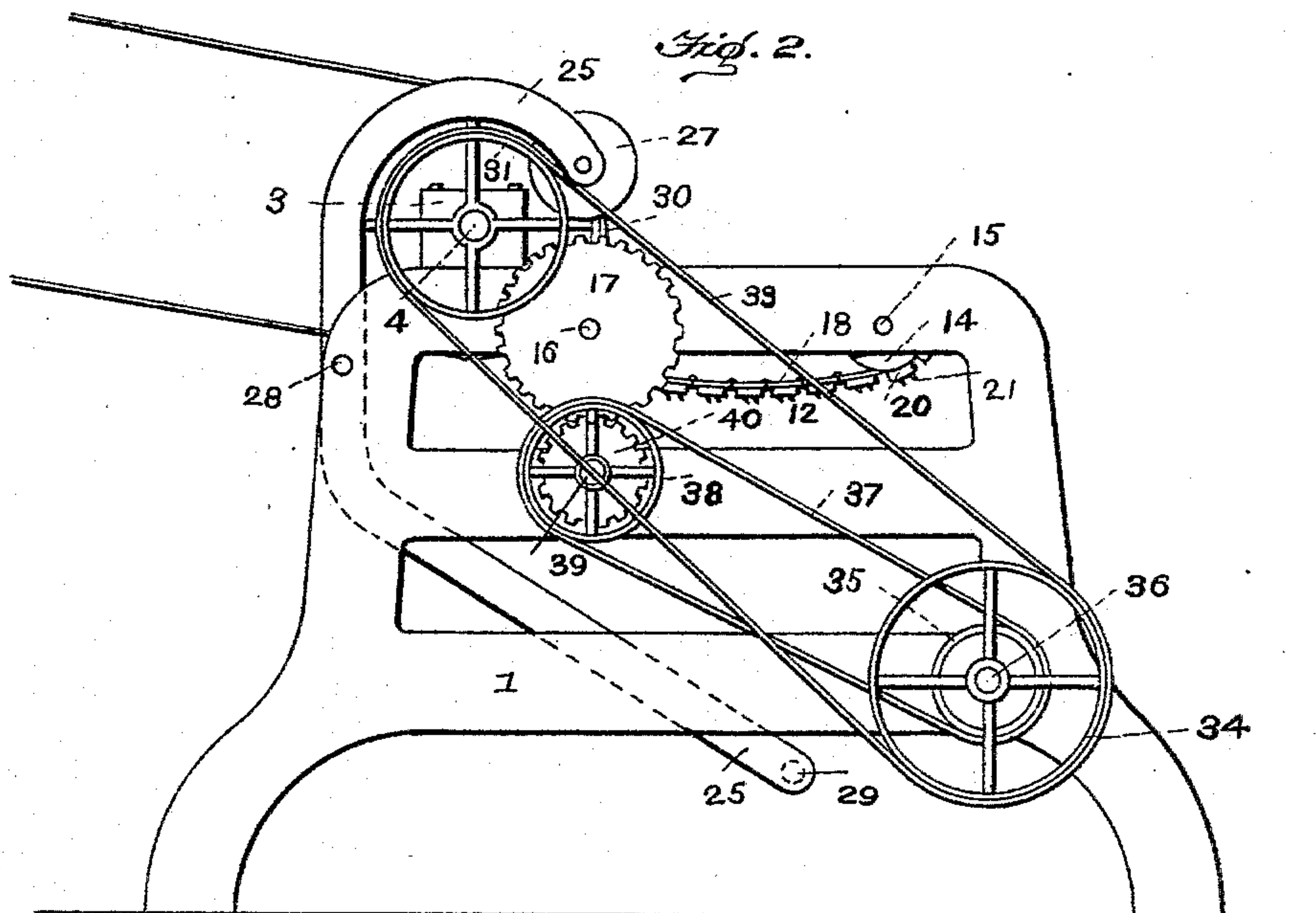


Fig. 2.



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2 Sheets—Sheet 2.

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Fig. 3.

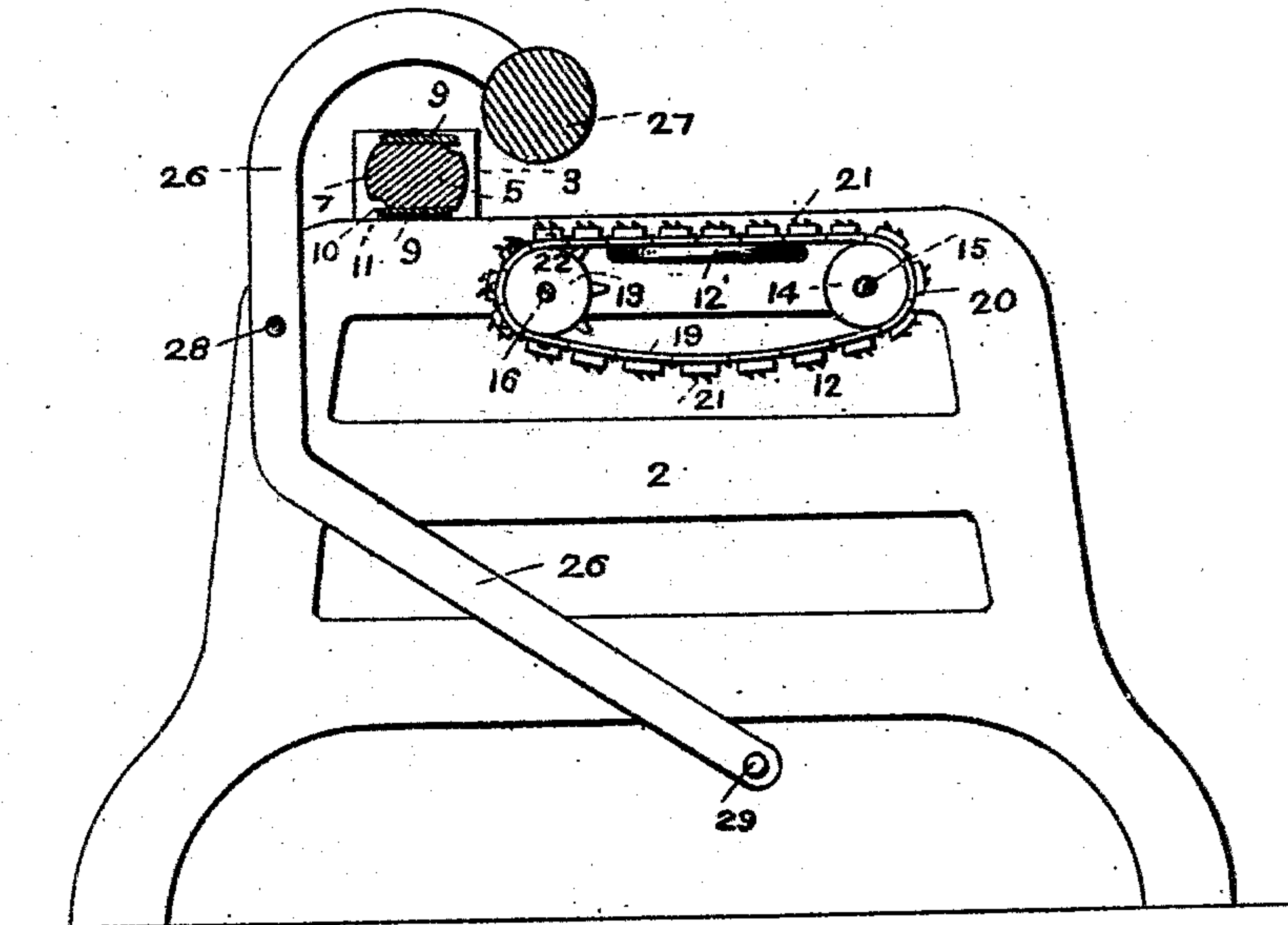


Fig. 4.

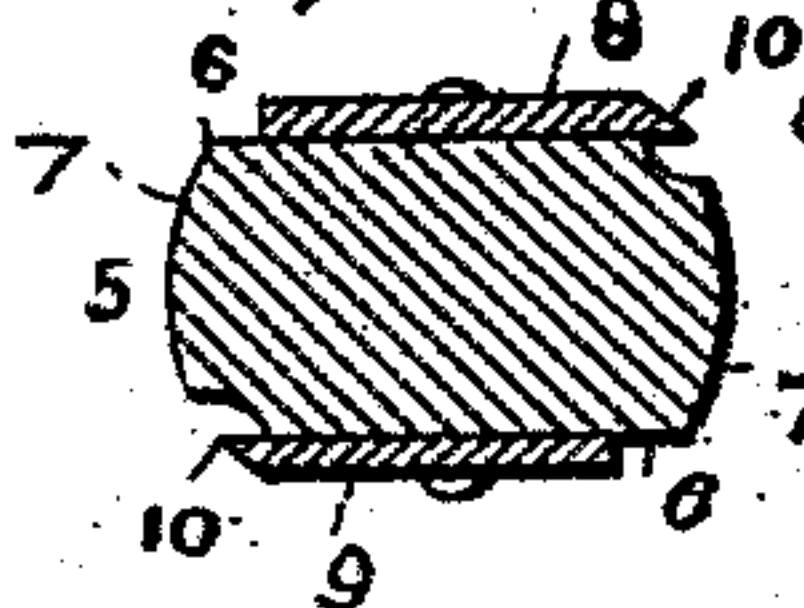


Fig. 5.

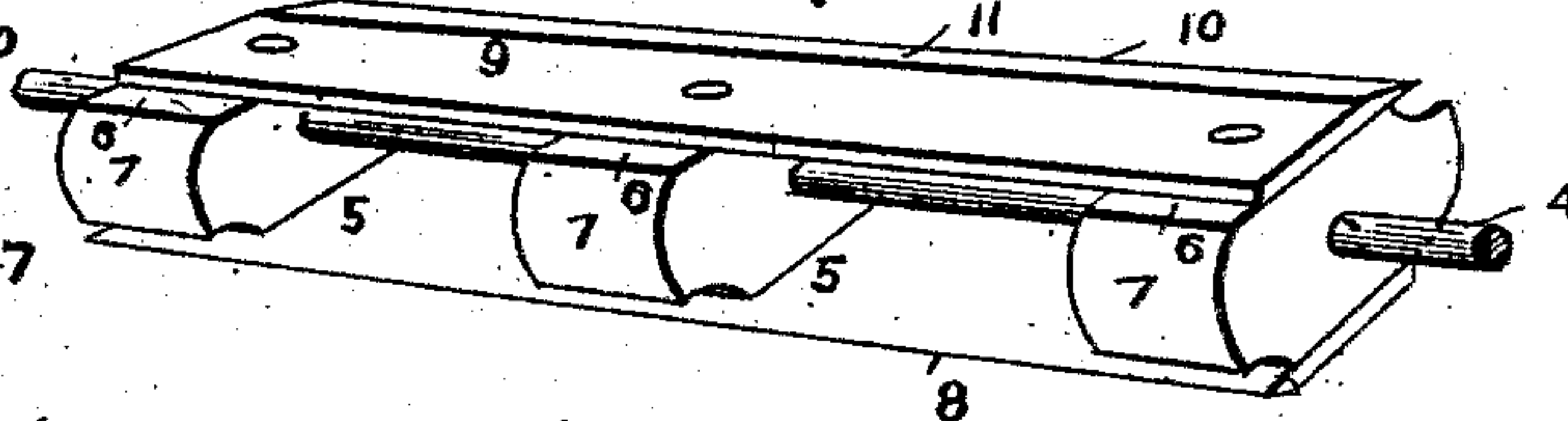


Fig. 6.

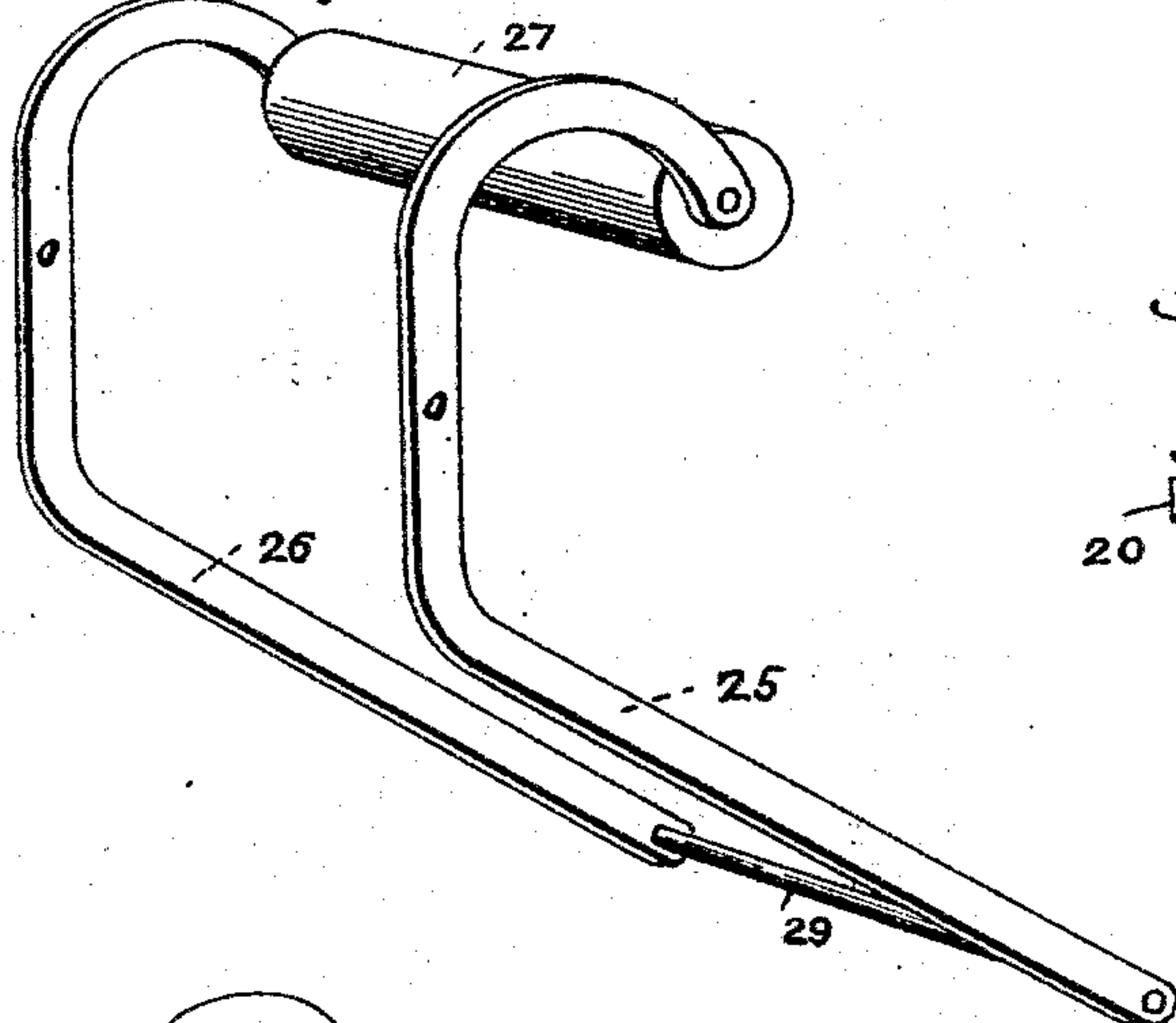
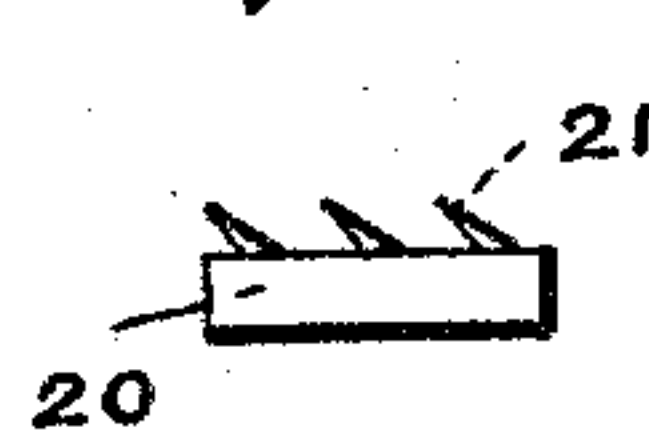


Fig. 7.



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UNITED STATES PATENT OFFICE.

FRANK HENRY STEARNS AND ALBIE E. STEARNS, OF EDEN, VERMONT.

MACHINE FOR ROSSING BARK.

SPECIFICATION forming part of Letters Patent No. 515,537, dated February 27, 1894.

Application filed December 9, 1892. Serial No. 454,644: (No model.)

To all whom it may concern:

Be it known that we, FRANK HENRY STEARNS and ALBIE E. STEARNS, citizens of the United States, residing at Eden, in the county of Lamoille and State of Vermont, have invented certain new and useful Improvements in Machines for Rossing Bark; and we 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 use the same.

Our invention relates to machines for rossing barks from logs of wood, and it is designed more particularly as an improvement upon the machine for which United States Letters Patent, No. 431,154, were issued to us on the 1st day of July, 1890.

One of the improvements which we have made resides in the improved form of counterbalanced gage whereby the log is prevented from having direct access to the cutter head and which can be thrown up and back out of the path of the log of wood by pressing said log against said gage, thus enabling the attendant to properly adjust and feed the log to the cutter head so as to remove the bark to the best advantage. In lieu of the horizontal gage sliding in slotted ways on the frame and having the drop weights connected thereto as shown and described in our prior patent hereinbefore referred to, we employ two levers which are arranged in rear of the cutter-head and fulcrumed at intermediate points of their length in the machine frame, the lower ends or heels of the levers being inclined inward under the feed mechanism and connected by a stay bolt while the upper ends of said levers are curved forward and over the cutter head so as to terminate in advance of the cutter head and over the feed mechanism. In these curved forward ends of the levers is loosely hung or journaled a cylindrical gage roll which is thus arranged over and above the feed mechanism and in advance of the cutter head, and this gage roll is suspended in such position by the levers, the lower ends of which serve to balance the weight of the gage roll, so that when a log, which is moved by the feed mechanism to the cutter head, strikes the gage roll, the latter is moved upward and rearward and the levers are turned on their fulcra, whereby the log

can be properly manipulated to ross the bark therefrom.

Another improvement we have made is in a novel form of feed mechanism for carrying the logs of wood to the cutter head, which mechanism comprises an endless traveling bed composed of two endless sprocket chains and a series of transverse toothed lags secured to the sprocket chains, a driving drum provided with sprocket wheels which mesh with the links of the sprocket chains, one or more idler drums to support one end of the endless traveling bed, and mechanism for positively rotating the driving drum.

Our invention further consists in the combination of devices and peculiar construction and arrangement of parts which will be hereinafter more fully described and pointed out in the claims.

The accompanying drawings fully illustrate our improved rossing machine, in which—

Figure 1 is plan view. Fig. 2 is a side elevation taken from one side of the machine to show the gearing. Fig. 3 is a longitudinal sectional view on the line $x-x$ of Fig. 1. Fig. 4 is an enlarged detail cross sectional view through one form of the cutter head, consisting of one solid piece with the segmental faces and knives. Fig. 5 is a detail view of another form of the cutter head consisting of two or more spaced blocks secured on a shaft and having the cutters affixed thereto. Fig. 6 is a detail view of the counterbalanced levers and gage roll. Fig. 7 is a detail view of one of the lags of the endless carrier.

Like numerals of reference denote corresponding parts in all the figures of the drawings, referring to which—

1, 2, designate the side pieces of the machine frame which are suitably connected and stayed together.

On the top of the main frame, near the rear part thereof, are mounted the bearings or pillow blocks 3, in which is journaled the shaft 4 of the cutter head 5.

The preferred constructions of our improved cutter head are shown more clearly by Figs. 4 and 5 of the drawings; in Fig. 4 the cutter head is shown as consisting of a single piece 5 having the flat faces 6, 6, and the segmental or circular faces 7, 7, between said flat faces, while in Fig. 5 the cutter head

consists of two or more spaced blocks or heads 5, 5, each having the flat faces 6, 6, and the intermediate segmental or curved faces 7, 7, to the flat faces of the cutter head 5 are secured the knives or cutters 8, 9, (two or more in number) which are arranged on opposite sides of the cutter head; and each of these knives is provided with a cutting edge 10 and the beveled neutral surface 11 in rear of said cutting edge, the knife being substantially the same as in our prior patent. The knives are secured to the cutter head in such positions that the cutting edges thereof project slightly beyond the curved or segmental faces 7, 7, of said cutter head; and this construction and arrangement we have found, by practical experience, to be quite important as the knives only cut into the bark to the extent that the edges 10 project beyond the segmental faces of the cutter head, thus preventing the knives from gouging or cutting into the log of wood.

The mechanism by which the log is carried or fed to the cutter head consists of an endless traveling bed 12 which lies in front of the cutter head. This endless bed is supported by the driving drums 13 and by the idler drum 14 situated at opposite ends of the traveling bed. The idler drums or rolls 14 are preferably located near the front part of the machine and are loosely carried on a shaft 15 which is journaled in suitable bearings on the sides 1, 2, of the frame; but the driving drum is rigid with the shaft 16, likewise journaled in bearings on the frame, one end of the shaft 16 being projected outside of the frame and provided with a spur gear wheel 17 which is rigidly secured to said shaft 16.

The traveling bed 12 consists of two endless sprocket chains 18, 19, and a series of traverse lags 20 which are arranged parallel with and close to each other, said lags being suitably fastened to the links of the sprocket chains, the whole forming an endless flexible bed adapted to travel around the driving and idler drums 13, 14. The outer face of each lag 20 of the traveling bed is provided with a multiplicity of teeth or spurs 21 which are inclined upwardly and rearwardly from the lag toward the cutter head in order to carry and feed the log of wood to the cutter head and to prevent said log, when it encounters the suspended gage-roll and the cutter head, from slipping backward on the traveling bed. The driving drum or roller 13 is provided, near its ends, with the circumferential sprocket wheels 22, 22, one of which is indicated in Fig. 3 of the drawings, which are rigidly secured to said roller 13 and which have their teeth meshing with the links of the sprocket chains 18, 19, whereby the endless bed is positively moved or fed by the sprocket wheels as the driving roller 13 is rotated.

In order to prevent the top side of the endless traveling bed from sagging under the weight of the log of wood thereon, we provide

the longitudinal stay bars 12', 12', which are arranged beneath the top side of the traveling bed, longitudinally thereof, and these bars 12' are attached or secured in any suitable way to the sides 1, 2, of the machine frame.

25, 26, designate the levers and 27 is the gage roll forming the counterbalanced gage of our present machine. The two levers 25, 26, are arranged in vertical positions at the rear part of the machine frame, and they are fulcrumed to the frame at intermediate points of their length by a suitable shaft or bar 28, thus leaving both ends of the levers free or unconfined. The lower ends or heels of the levers are inclined or extended forward and inward beneath the feed mechanism of the machine, and they are connected by a transverse stay bolt 29. The upper ends of said levers are extended or carried vertically above the cutter head, and they are then curved forward over said cutter head so that their front ends terminate in advance of the cutter head and over the endless traveling bed. The gage roll 27 has its shaft loosely journaled in the extreme forward ends of the levers, and it is sustained normally in front of the cutter head and above the endless bed by the weight of the lower part of the levers 25, 26. When a log of wood is carried by the toothed lags of the traveling bed toward the cutter head, it first strikes against the suspended gage-roll, forcing the latter upward and rearward over the cutter head and turning the levers on their fulcra so that the heels of the levers are lifted toward the traveling bed; but the gage roll continues to press against the log of wood so as to hold the latter from being advanced by the traveling bed into too close engagement with the cutter head, so that the attendant is enabled to properly adjust or manipulate the log of wood to effect the rossing of the bark from the log to the best advantage.

The shaft of the cutter head is extended at both ends beyond its bearings, and it is provided with two fast pulleys 30, 31. To the pulley 30 at one end of the cutter head shaft power is applied from the driving pulley of a suitable motor or line of shafting; and around the other pulley 31 runs a belt 33 which passes around the large pulley 34, forming a part of a loose differential pulley, the latter consisting of the aforesaid large pulley 34, and a smaller pulley 35. These pulleys 34, 35, constituting the differential pulley, are rigidly fastened together in any suitable way, and the differential pulleys 34, 35, are loosely mounted on a suitable shaft or stud 36 supported at the lower forward end of the machine. From the smaller pulley 35 runs a belt 37 which passes around a larger pulley 38 loosely supported by a shaft or stud 39 on one of the sides of the frame, and this pulley has a gear wheel 40 rigid with its hub or face. This gear 40 meshes with the gear wheel 17 on the shaft 16 of the driving drum or roll 13, and said driving drum or roll 13 is thus driven

or rotated through the gears 40, 17, the pulleys 38, 35, 34, and 31, and the belts 37, 33, from the shaft of the cutter head.

The operation and advantages of our invention will be readily understood and appreciated by those skilled in the art to which it relates from the foregoing description taken in connection with the drawings.

We are aware that changes in the form and proportion of parts and details of construction of the mechanisms herein shown and described as an embodiment of our invention can be made without departing from the spirit or sacrificing the advantages thereof, and we therefore hold ourselves at liberty to make such modifications and alterations as fairly fall within the scope of our invention.

Having thus fully described our invention, what we claim as new, and desire to secure by Letters Patent, is—

1. In a machine for rossing bark, the combination with a feed mechanism and a cutter head situated at one end of said feed mechanism in the path of the work, of balancing levers, and a gage roll suspended by said balancing levers in advance of the cutter head and over the inner end of the feed mechanism in the path of the work, whereby the gage roll is brought down between the cutter-head and the work to gage the approach of the work to the cutters, as set forth.

2. In a machine for rossing bark, the combination with a cutter head and a feed mechanism, of the vertical levers arranged in rear of the cutter head and having their upper ends extended over the cutter head, and a gage roll suspended from said extended ends of the levers in advance of the cutter head and above the feed mechanism, substantially as described.

3. In a machine for rossing bark, the combination with a cutter head, and a feed mechanism, of the vertical levers fulcrumed on the machine frame in rear of the cutter head and having their lower ends extended inward below the feed mechanism and with their upper ends curved over the cutter head, and the gage roll loosely suspended between said upper curved ends of the levers and arranged in front of the cutter head and above the feed mechanism, substantially as described.

4. In a machine for rossing bark, the com-

bination of a feed mechanism, a cutter head situated in the line of movement of the work as it is moved thereto by the feed-mechanism, and a rotatable gage-roll suspended in advance of the cutter-head and over the feed-mechanism in the path of the work thereon, the relation of the cutter head to the feed mechanism being such that the work will not pass over, beneath or beyond the cutter-head and the gage-roll is adapted to be moved down to the cutter head and the work, to gage the approach of the work to the cutter, substantially as and for the purposes described.

5. In a machine for rossing bark, the combination of the driving and idler rollers, the traveling bed supported by said rollers and having its connected lags provided with teeth which are inclined forward with relation to the line of travel of said bed as it approaches the cutter head, a rotary cutter-head situated at one end of said traveling bed directly in the path of the work on said bed, and a gage-roll suspended in advance of the cutter-head and above the inner end of the bed in such relation thereto as to be brought between the cutter head and the work on the bed, for the purposes described, substantially as set forth.

6. In a machine for rossing bark, the combination of the driving roller provided at one end with a gear, the idler-roller, the endless bed supported by said driving and idler rollers and provided with the toothed lags, the pulley 38 having a gear which meshes with the gear on the driving roller, the cutter-head situated at one end of said endless bed in the direct path of the line of feed of the work on said bed, the differential pulleys and the belts connected to the pulley 38 and the shaft of the cutter-head, and the gage-roll suspended over the inner end of the bed and in advance of the cutter head in such relation thereto as to be brought down between the cutters and the work on the bed, for the purposes described, substantially as set forth.

In testimony whereof we affix our signatures in presence of two witnesses.

FRANK HENRY STEARNS.
ALBIE E. STEARNS.

Witnesses:

LONA M. ALLEN,
L. F. ALLEN.