

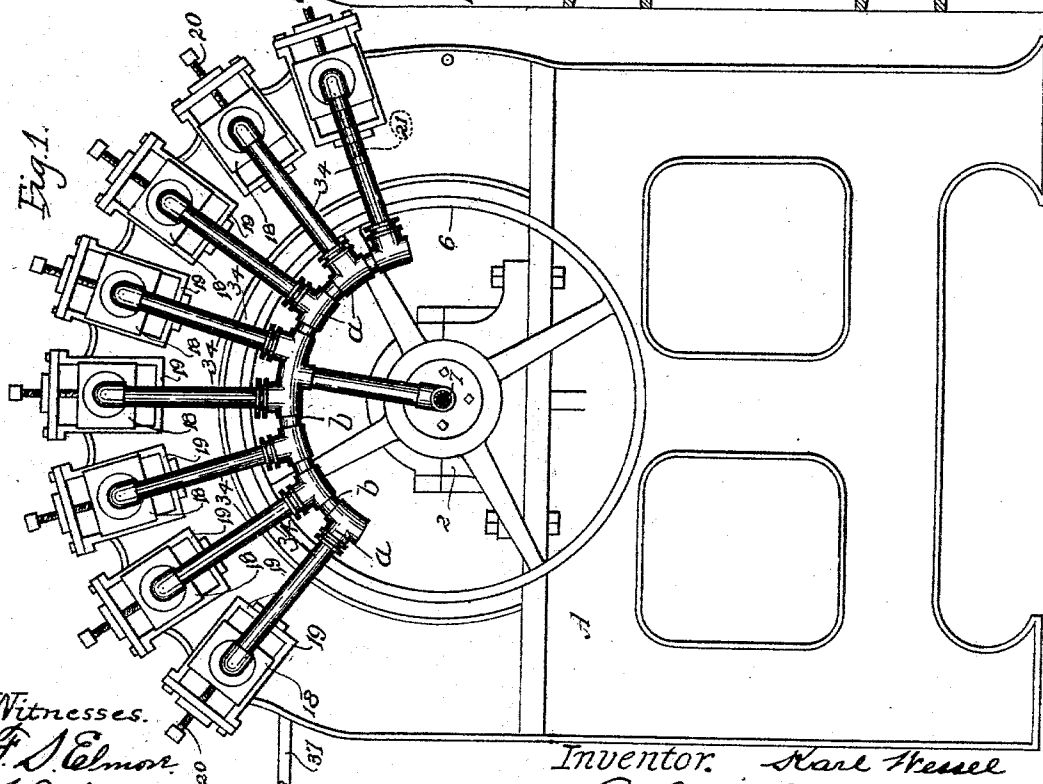
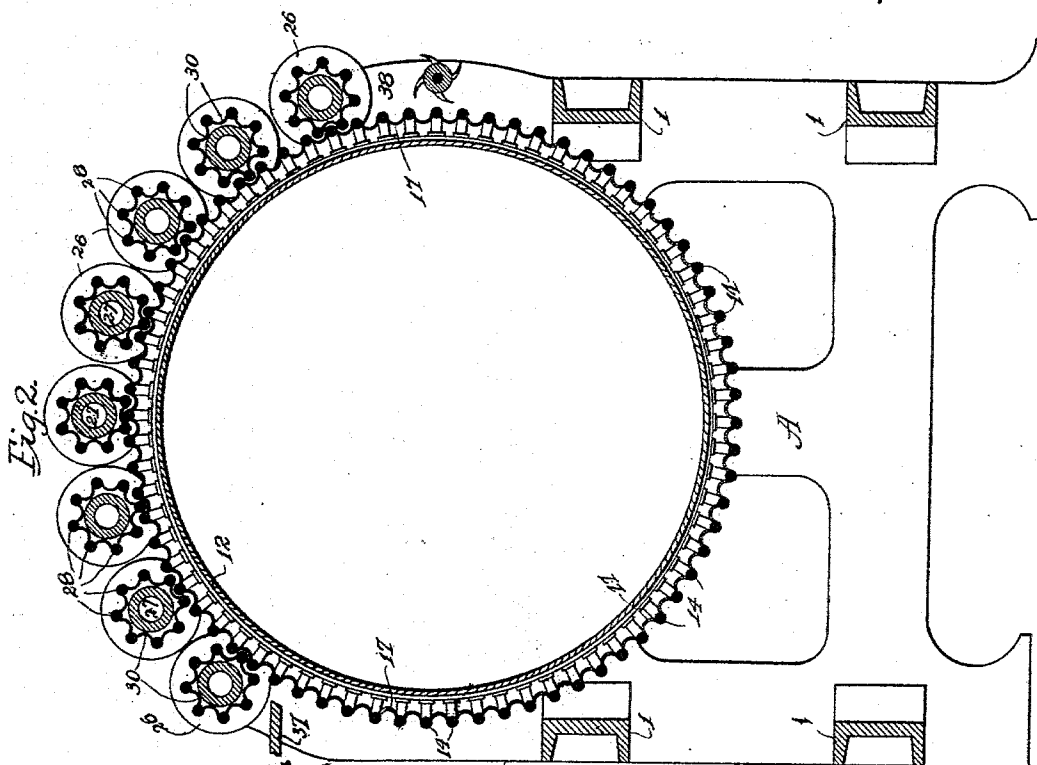
(No Model.)

2 Sheets—Sheet 1.

K. WESSEL.
HAY CURLING MACHINE.

No. 515,891.

Patented Mar. 6, 1894.



Witnesses.

F. J. Elmor.

N. A. Kamm.

Inventor. Karl Wessel
By Lotz & Kennedy attys

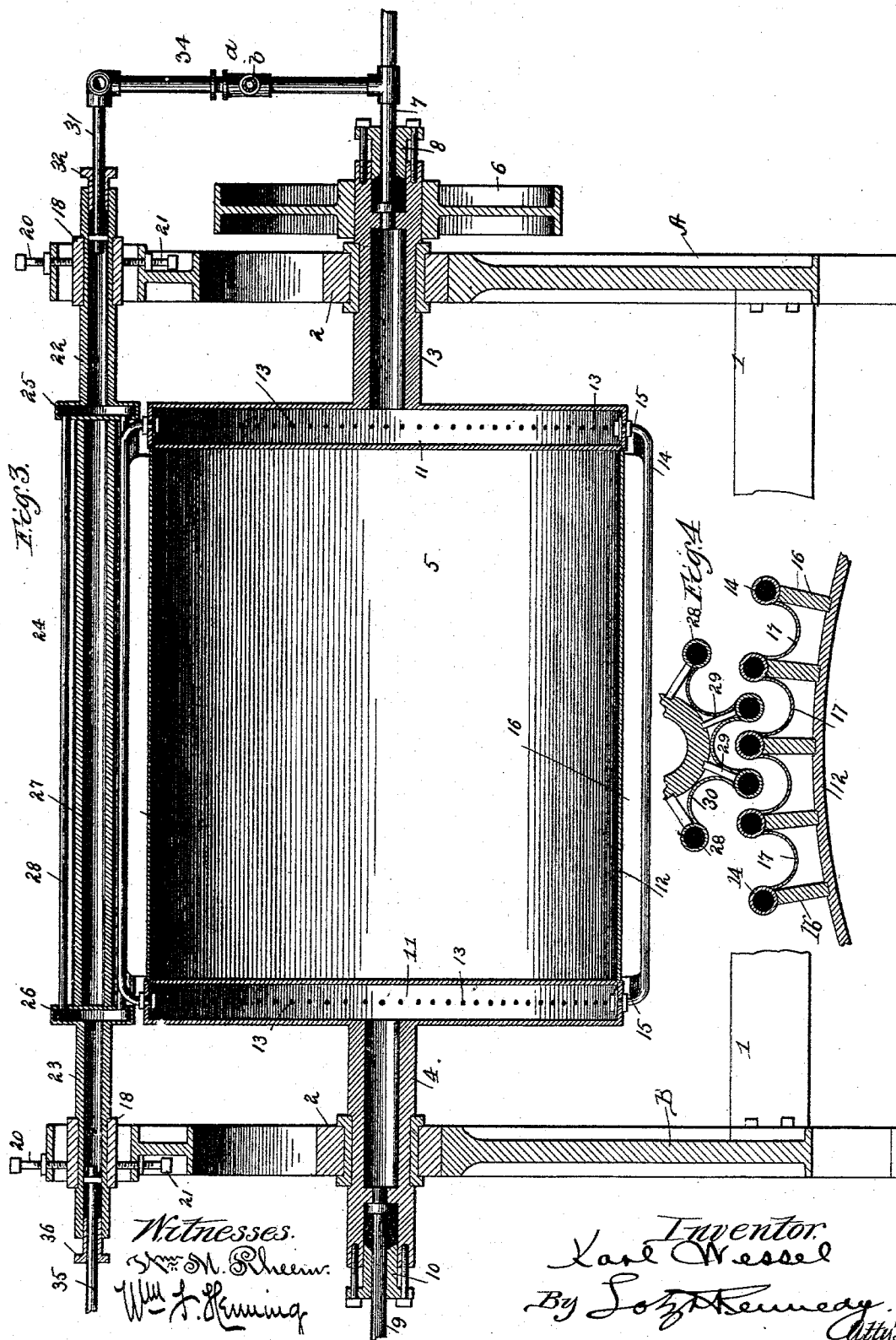
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UNITED STATES PATENT OFFICE.

KARL WESSEL, OF LANSING, ASSIGNOR TO THE WESSEL CURLED GRASS MANUFACTURING COMPANY, OF CHICAGO, ILLINOIS.

HAY-CURLING MACHINE.

SPECIFICATION forming part of Letters Patent No. 515,891, dated March 6, 1894.

Application filed August 2, 1892. Serial No. 441,972. (No model.)

To all whom it may concern:

Be it known that I, KARL WESSEL, a subject of the German Emperor, residing at Lansing, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Hay-Curling Machines; and I 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.

This invention relates to a novel construction in hay curling machines and has for its object to provide a device of this character, of simple and durable construction and which will curl or crimp the hay in an effectual manner.

The invention consists in the features of construction and combinations of parts hereinafter fully described and specifically claimed.

In the accompanying drawings illustrating my invention,—Figure 1 is an end elevation of the same. Fig. 2 is a vertical cross section. Fig. 3 is a vertical longitudinal section. Fig. 4 is a fragmentary detail view.

Referring now to said drawings, A and B indicate the end frames or standards of the machine which are suitably connected and braced together by two beams 1. About midway between the upper and lower ends of the standards A and B are located the journal bearings or boxes 2 that are adapted to receive the hollow journals 3 and 4 upon the end of a cylinder 5. These hollow journals 3 and 4 communicate with the interior of said cylinder 5 and serve to permit the ingress and egress of steam. The said journals 3 and 4 extend beyond the bearings 2, and the journal 3 is provided thereat with a drive pulley 6 or the means for rotating the same. A steam-supply pipe 7 communicates with the end of the hollow journal 3, and a stuffing box 8 serves to form a tight connection between said pipe 7 and journal 3. In this way it will be seen steam can be admitted to the said hollow journal and to the interior of the cylinder 5. It will, of course, be understood that I can employ a different medium for imparting heat to the cylinder, but I have found steam convenient and preferable. The journal 4 at the other end of the cylinder

communicates at its outer end with an outlet pipe 9 and is provided with a stuffing box 10 to form a tight joint therewith, in an obvious manner. The construction of said cylinder 5 is as follows: Two hollow disks 11 that are connected and communicate with the journals 3 and 4 serve to form the ends of said cylinder, and said disks are connected with each other by a hollow cylindrical casing 12 joined at its ends to said disks as shown in Fig. 3. A series of openings or perforations 13 are made in the periphery of each of said disks so that the perforations in each disk are in alignment with each other. A series of pipes 14 are provided with inwardly bent ends 15 and these ends are inserted within the openings or perforations 13 in the hollow disks, and secured in such a manner as to make a steam tight joint therewith. In this way it will be seen that the pipes 14 will stand away from the face of the cylinder, but parallel therewith, as shown in Figs. 2 and 3, and that the entire face of the cylinder will be provided with the laterally projecting pipes 14. The said pipes 14 are supported so that they will stand at all times parallel with the face of the cylinder by bars 16 that extend between said pipes and the face of the cylinder and from one end of the cylinder to the other, so that said pipes will be braced along their entire length, as will be manifest. Located between each of said lines of pipes and extending the whole length of the same is a series of grooved or transversely curved gutters 17. These gutters 17 are secured along their side edges to the pipes 14 and serve to produce in effect a corrugated cylinder or a cylinder having a series of grooves and intervening ribs or ridges.

To the top of the standards A and B, and concentric with the journals of the cylinder, are arranged a plurality of journal bearings or boxes 18. The said boxes or bearings 18 are located within guides 19 that are readily arranged with relation to the cylinder, and the said boxes 18 have a sliding connection with said guides and are controlled by two screws or bolts 20 and 21 arranged respectively above and below said boxes 18 and bearing against the same, so that by suitably turning said screws or bolts the bearings 18

can be nicely adjusted. Said boxes 18 at each end of the machine are arranged in alignment with each other and receive the journals 22 and 23 on the ends of the pressure rollers 24. A plurality of these pressure rollers 24 are employed, as shown in Figs. 1 and 2, and they are disposed about the cylinder as shown. Each of said pressure rollers 24 is constructed as follows: Connected and communicating with the hollow journals 22 and 23 are the hollow disks 25 and 26 which are connected with each other by a pipe or tube 27, and said pipe or tube 27 is smaller than the disks 25 and 26, so that said disks project beyond the same. Upon the inner faces of said disks 25 and 26 a series of perforations or openings are made which receive the ends of pipes 28, as clearly shown in Fig. 3. The said pipes 28 are located parallel with the face of the tube 27 and are supported in this position by bars 29 that extend the entire length of said tube 27. Located between each of the pipes 28 is a transversely grooved or curved cutter 30 which is secured along its edges to the pipes 28, as clearly shown in Fig. 4. The said pressure rollers 24 are so disposed with relation to the cylinder 5 that the grooves and ridges on said pressure rollers will intermesh or interfit with the grooves and ridges on the cylinder, so that as said cylinder is turned it will in turn rotate said pressure rollers upon their journals. The devices for introducing steam or other heating medium into said pressure rollers are constructed as follows: The said hollow journals 22 and 23 extend beyond their bearing boxes and the journal 22 communicates with an inlet pipe 31 for supplying steam thereto. A stuffing box 32 serves to form a tight joint between the inlet pipe 31 and the said journal. Each of said inlet pipes is connected by a radial pipe 34 to a stuffing box *a* on the curved pipe *b*, to allow longitudinal movement of said pipes 34 when it is desired to adjust the small pressure rollers 24. The other hollow journal 23 of the pressure rollers communicates with an outlet pipe 35, and a stuffing box 36 is employed to make a tight connection between these parts. The said outlet pipes 35 are similarly connected by radial pipes 34 to stuffing boxes *a* on a curved pipe *b* for the same reasons. In this way it will be seen that hot steam is admitted through the hollow journal 22 and disk 25 to the pipes 28 of the pressure rollers, so as to heat the same, while at the same time steam is admitted to the pipes 14 of the cylinder to impart heat to these pipes.

As shown in Fig. 1 a shelf or table 37 is secured between the standards A and B of the machine just below the first of the series of pressure rollers and forms a table or platform upon which the hay can rest while being fed into the machine. Just below the last of the series of pressure rollers, and on the other side of the machine, is arranged a delivering roll 38 which is preferably ribbed, as shown,

and upon which the hay will fall and be deflected outwardly, in an obvious manner.

When the hay is to be curled it is fed across the table 37 in a moist and dampened condition, while at the same time the pipes of the cylinder and pressure rollers are heated by the passing of steam therethrough and the cylinder is rotated. As the hay is fed between the first of the series of pressure rollers and the cylinder it will be caught between the same and moved or fed along so as to pass between each pressure roller and the cylinder. The hot pipes serve to dry the moisture out of the hay, and by reason of the interfitting pipes and the corrugated form of the cylinder the hay will also be curled or crimped and pressed into the desired condition and will emerge in this condition from the last pressure roller.

It will, of course, be understood that the gutters or curved pieces between the pipes 17 and 28 serve to prevent the hay from entering behind these pipes and clogging the machine, and it will also be noted that in accordance with the principle involved by my invention I contemplate omitting such gutters if it is found desirable, whereupon the supporting bars 16 and 29 which support the pipes 14 and 28 will serve to prevent the hay from clogging behind the said pipes.

I claim as my invention—

1. A machine of the kind specified comprising a supporting frame, a revoluble cylinder mounted thereon and provided with a series of longitudinally arranged pipes, devices for heating said pipes, and a series of ribbed pressure rollers revolubly mounted upon said frame and intermeshing with the pipes of said cylinder, and provided with devices for heating the same.

2. A machine of the kind specified comprising a supporting frame, a cylinder provided at its ends with hollow disks, hollow journals communicating with said disks and mounted in bearings upon said frame, inlet and outlet pipes or passages communicating with said hollow journals, a series of pipes communicating at their ends with said hollow disks against the side of said cylinder longitudinally, a series of ribbed pressure rollers mounted upon said frame and intermeshing with the pipes of said cylinder, and devices for heating said pressure rollers.

3. A machine of the kind specified comprising a supporting frame, a cylinder provided at its ends with hollow disks 13, hollow journals communicating with said disks and supported in bearings upon said frame, inlet and outlet pipes or passages communicating with said hollow journals, a series of pipes communicating at their ends with said hollow disks and extending longitudinally across the side of the cylinder, supporting bars 16 arranged between said pipes and said cylinder, and a series of pressure rollers mounted upon said supporting frame and provided with devices for heating the same.

4. A machine of the kind specified comprising a supporting frame, a cylinder provided at its ends with hollow disks, hollow journals communicating with said disks and
 5 mounted in bearings on the frame of the machine, inlet and outlet pipes or passages communicating with said journals, a series of pipes communicating at their opposite ends with said hollow disks and extending longitudinally along the side of said cylinder, an
 10 inwardly curved or concaved gutter 17 located between each of said pipes, and a series of pressure rollers mounted upon the frame of the machine and provided with devices for heating the same.
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5. A machine of the kind specified comprising a supporting frame, a revoluble ribbed cylinder mounted in bearings thereon and provided with devices for heating the same, and a series of pressure rollers, each of said
 20 pressure rollers comprising a series of longitudinally arranged pipes 28 communicating at their ends with hollow disks which communicate with hollow journals mounted in bearings upon the frame of the machine and communicating with inlet and outlet pipes or passages.
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6. A machine of the kind specified comprising a supporting frame, a revoluble ribbed cylinder mounted in bearings thereon and
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provided with devices for heating the same, and a series of pressure rollers, each of said pressure rollers comprising a series of pipes 28 communicating at their ends with hollow disks, a tube or pipe 27 connecting said hollow disks, supporting bars 29 located between said pipes 28 and tube 27, hollow journals communicating with said hollow disks and mounted in bearings upon the frame of the machine, and inlet and outlet pipes or passages communicating with said hollow journals.
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7. A machine of the kind specified comprising a supporting frame, a revoluble ribbed cylinder mounted in bearings thereon and
 45 provided with devices for heating the same, and a series of pressure rollers comprising pipes 28 communicating at their ends with hollow disks, inwardly curved gutters 29 located between each of said pipes 28, hollow
 50 journals communicating with said hollow disks and mounted in bearings on the frame of the machine and communicating with inlet and outlet pipes or passages.

In testimony whereof I affix my signature in presence of two witnesses.
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KARL WESSEL.

Witnesses:

WM. H. LOTZ,

RUDOLPH W. LOTZ.