

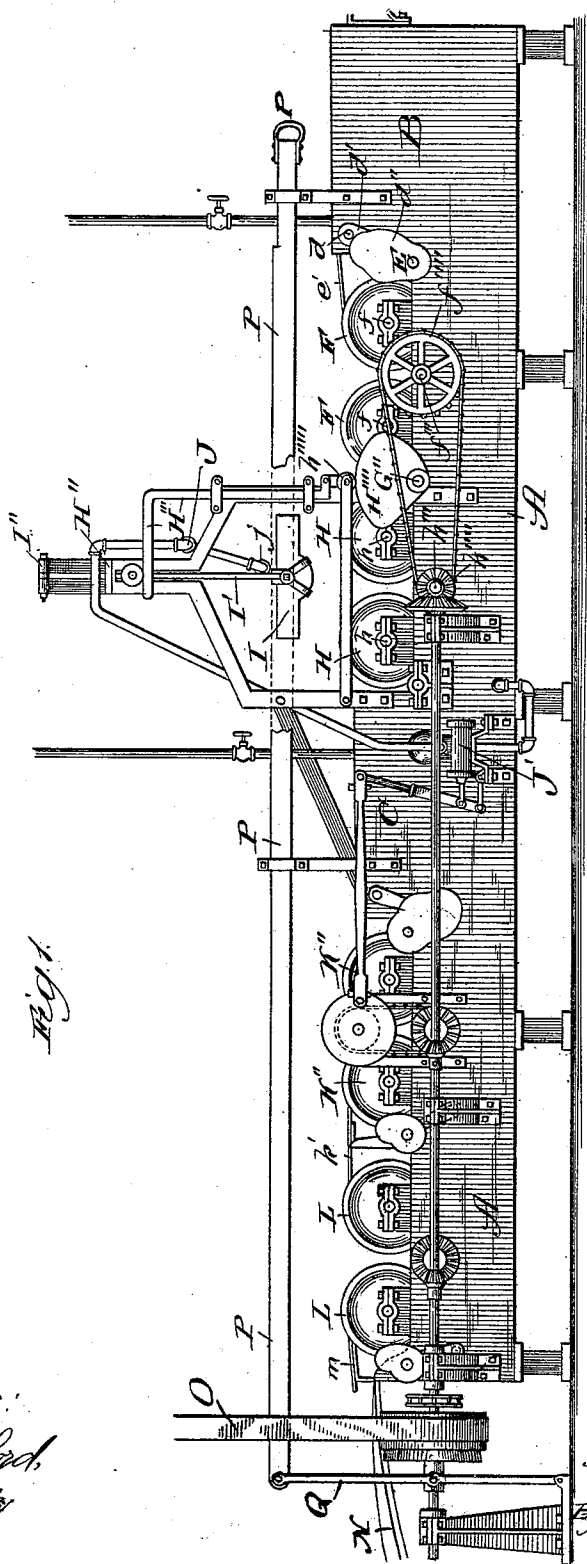
(No Model.)

8 Sheets—Sheet 1.

M. GOTTFRIED.
BARREL WASHING MACHINE.

No. 450,149.

Patented Apr. 14, 1891.



Witnesses:
Charles E. Gaylord,
Clifford White

Inventor:
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Attorneys.

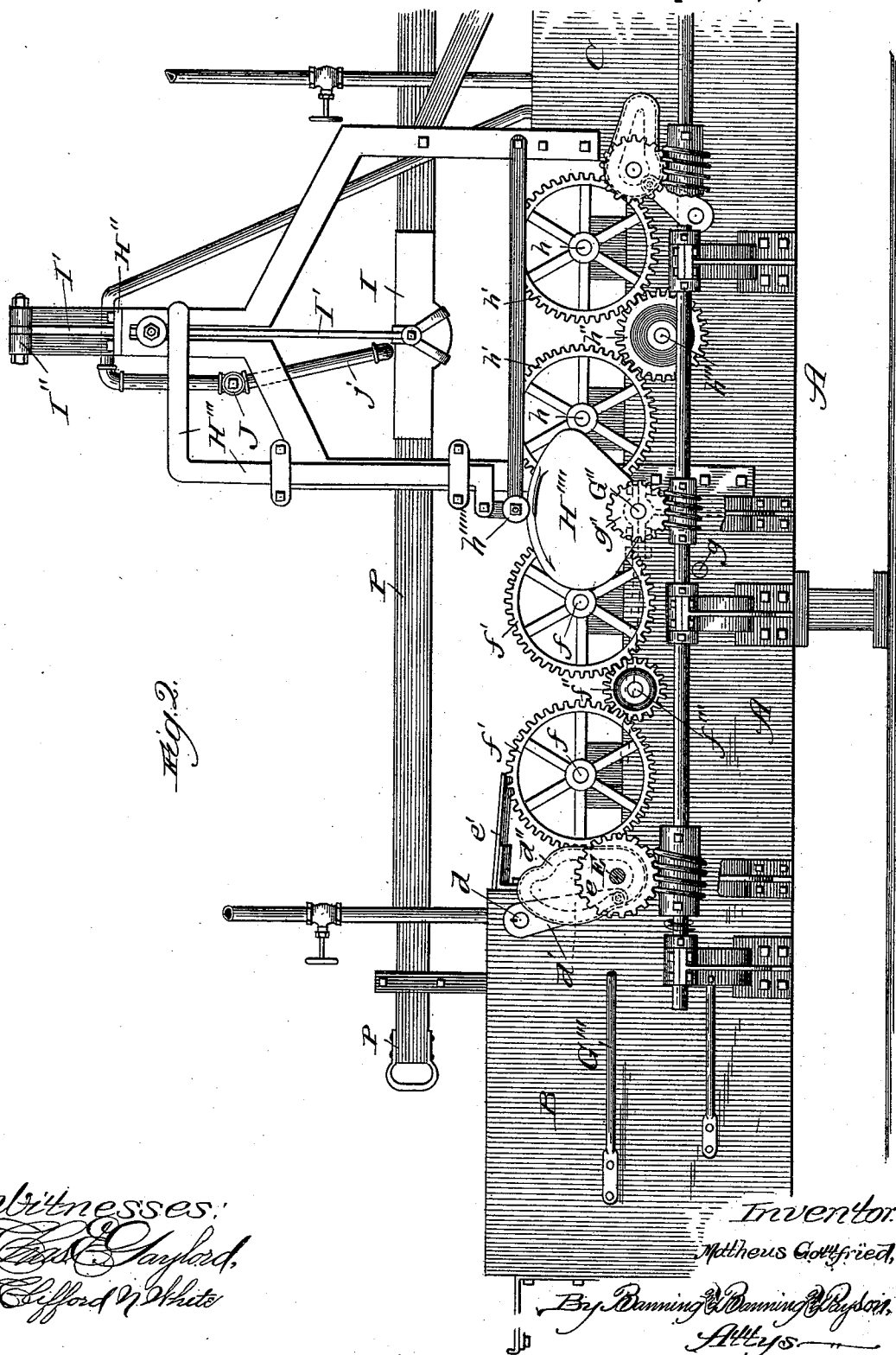
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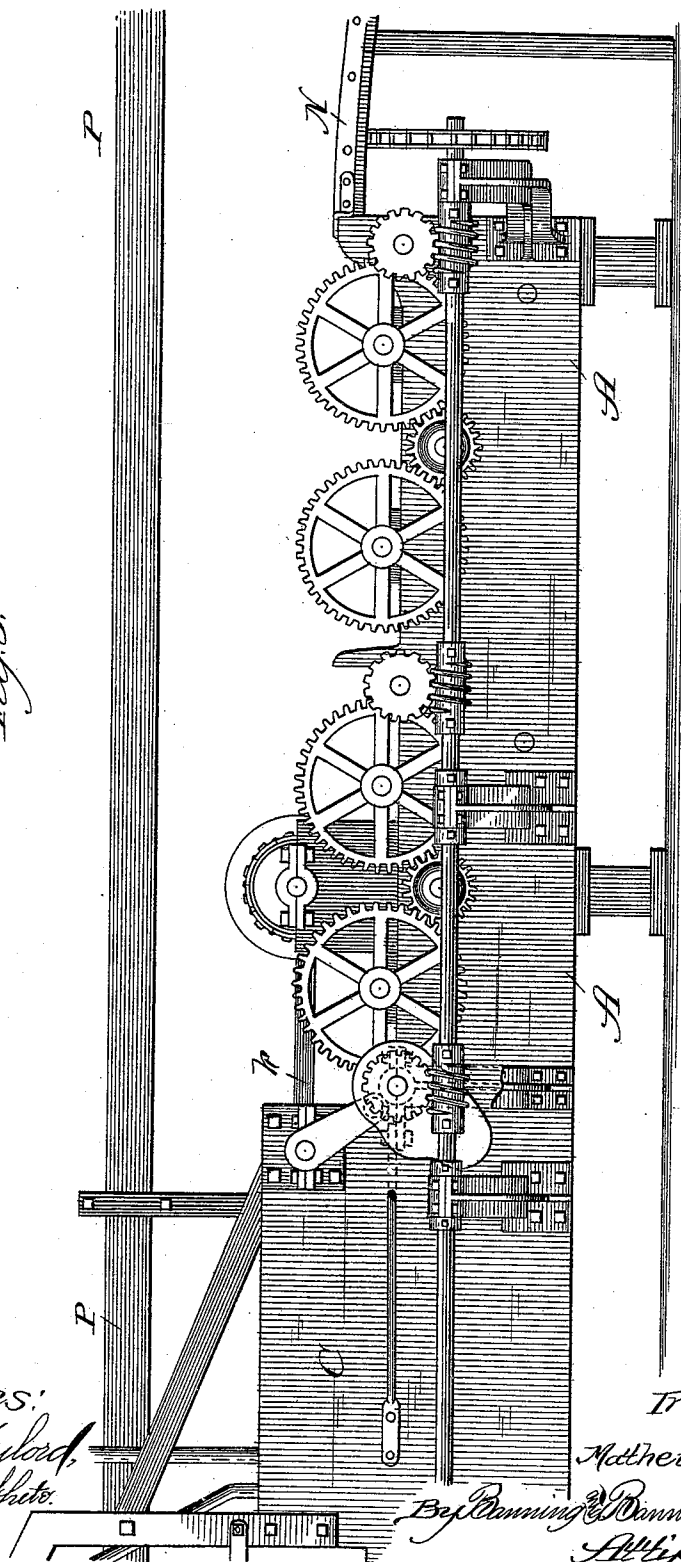
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M. GOTTFRIED.
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Fig. 3.



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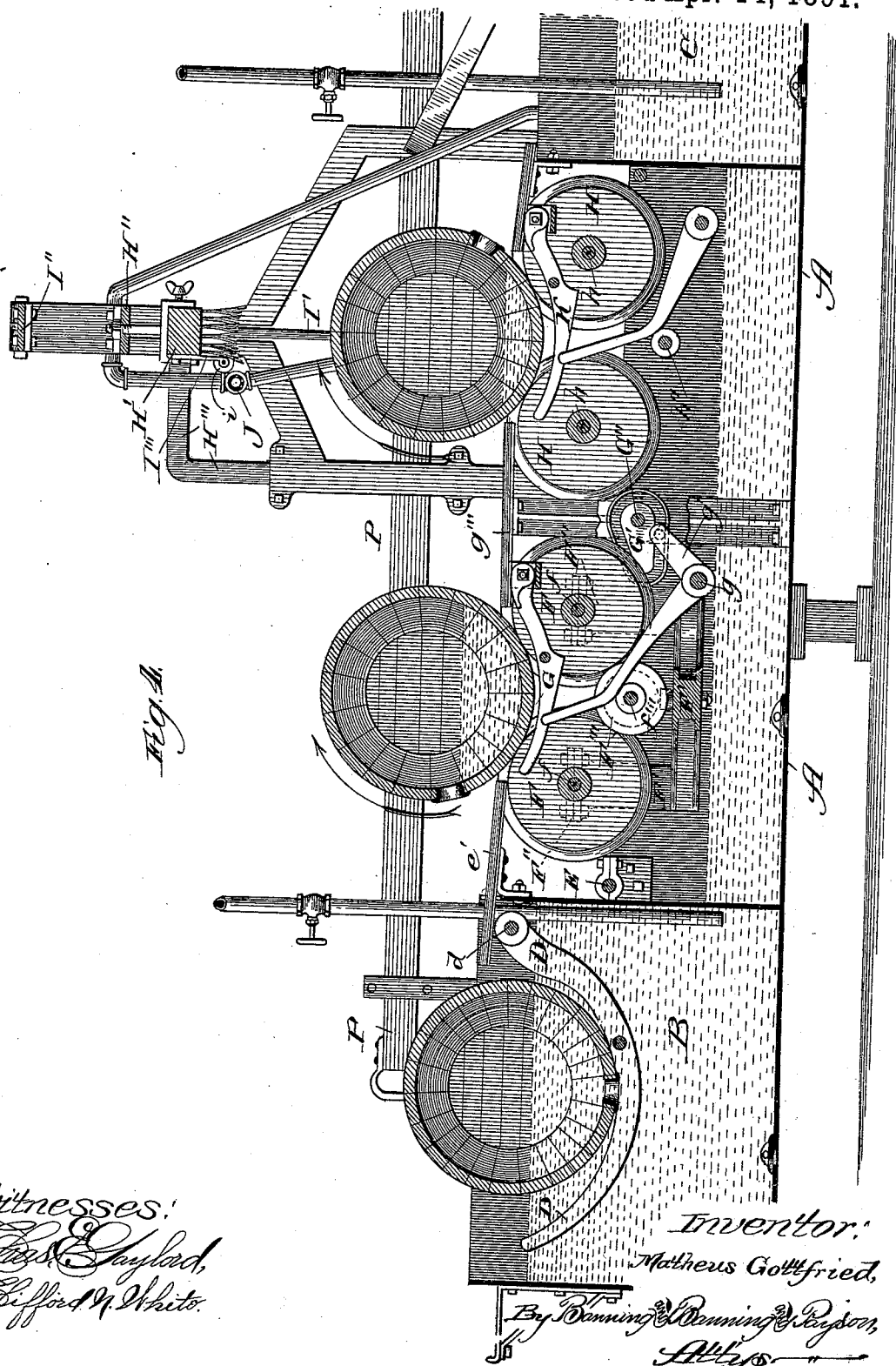
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M. GOTTFRIED.
BARREL WASHING MACHINE.

No. 450,149.

Patented Apr. 14, 1891.



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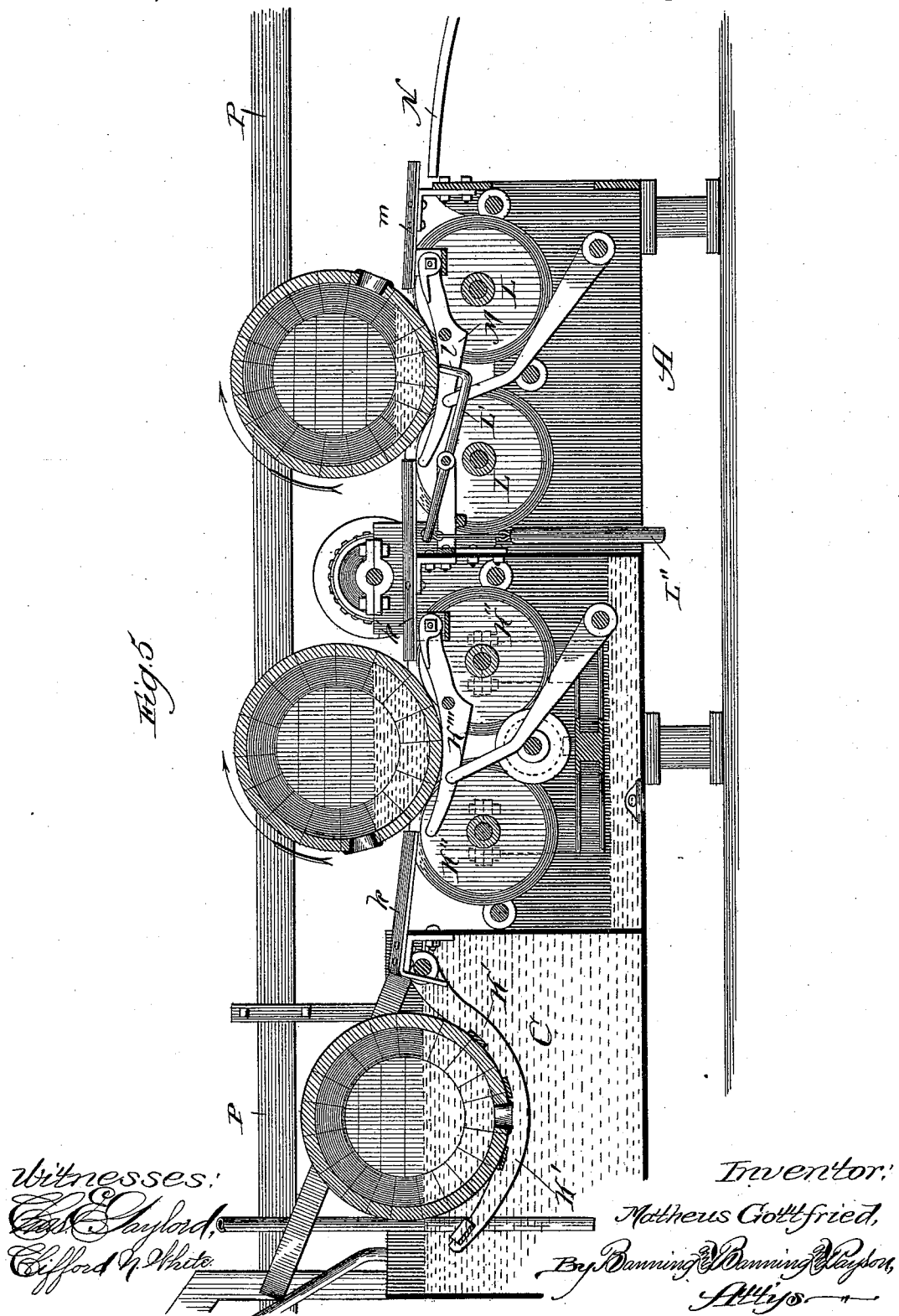
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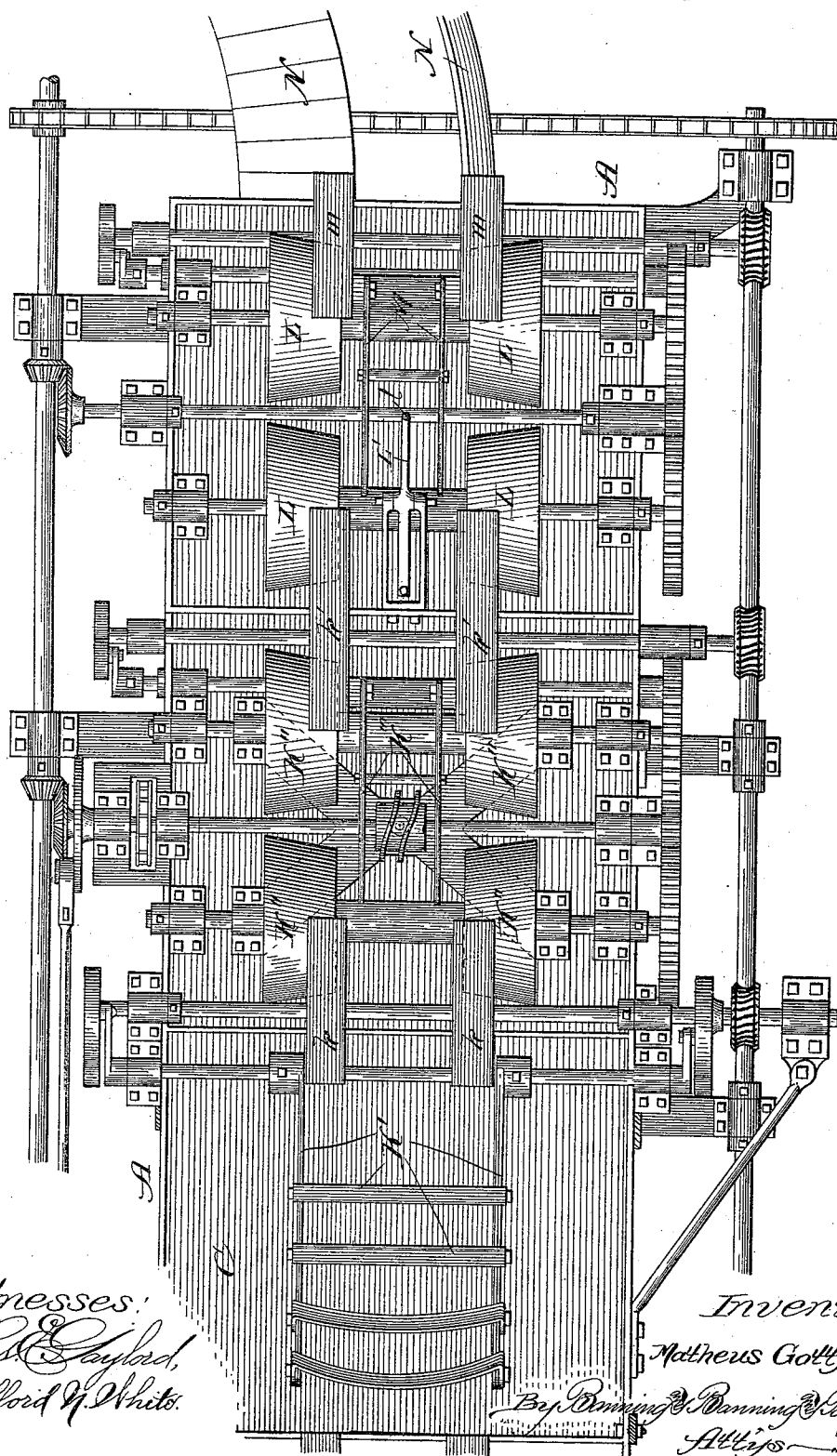
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M. GOTTFRIED.
BARREL WASHING MACHINE.

No. 450,149.

Patented Apr. 14, 1891.



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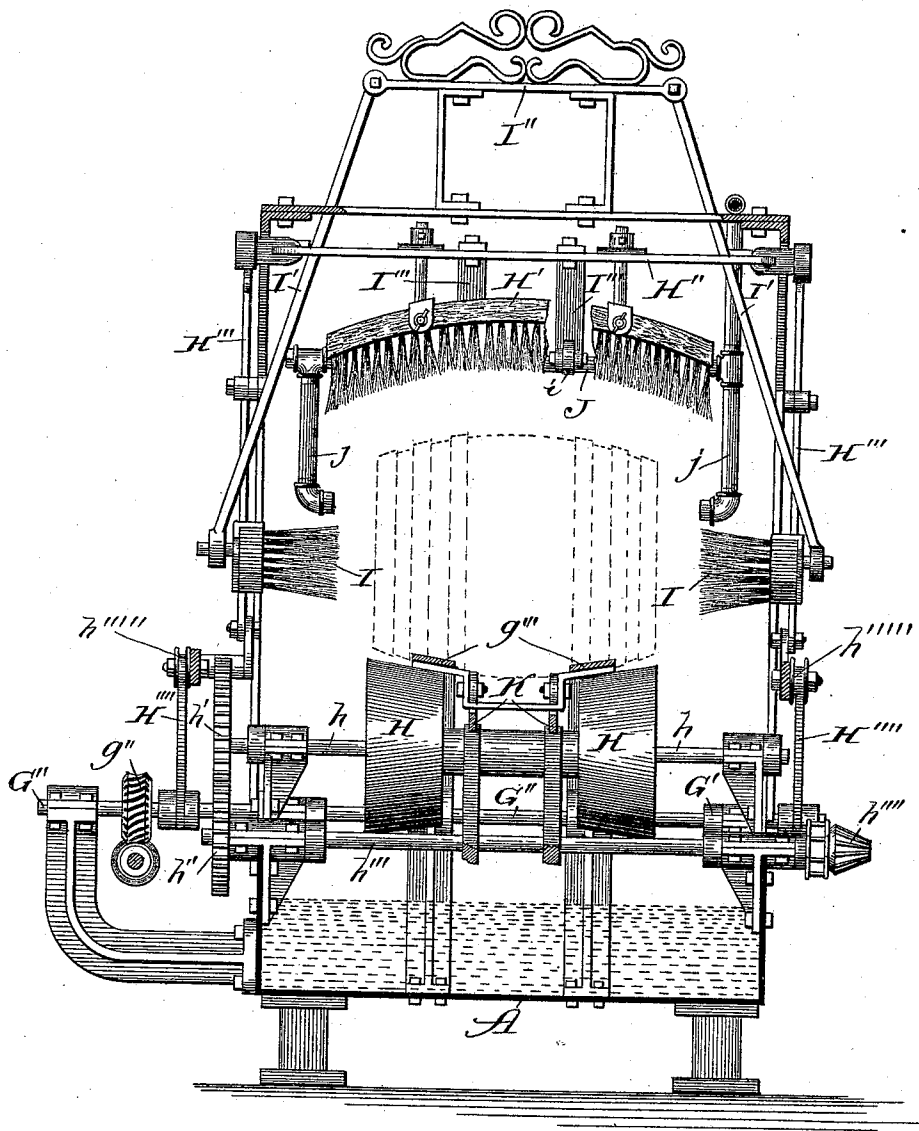
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M. GOTTFRIED.
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Fig. 8.



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UNITED STATES PATENT OFFICE.

MATHEUS GOTTFRIED, OF CHICAGO, ILLINOIS.

BARREL-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 450,149, dated April 14, 1891.

Application filed August 7, 1890. Serial No. 361,329. (No model.)

To all whom it may concern:

Be it known that I, MATHEUS GOTTFRIED, a citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in Barrel-Washing Machines, of which the following is a specification.

The object of my invention is to make a machine by which beer and other barrels and kegs may be washed both on the inside and on the outside by machinery; and my invention consists in the features and details of construction hereinafter described and claimed.

In the drawings, Figure 1 represents an elevation of my improved washing-machine viewed from one side. Fig. 2 represents a side elevation of the front end of my machine viewed from the other side. Fig. 3 represents a side elevation of the rear end of the machine, beginning about where Fig. 2 leaves off. Fig. 4 represents a longitudinal vertical section of the front end of the machine. Fig. 5 represents a longitudinal vertical section of the rear end of the machine, beginning about where Fig. 4 leaves off. Fig. 6 represents a plan view of the front end of the machine. Fig. 7 represents a plan view of the rear end of the machine, beginning about where Fig. 6 leaves off; and Fig. 8 represents a transverse vertical section of the machine, taken through the machine at a point beyond the brushes and looking toward the front end of the machine, as from the line 8 in Fig. 6, looking in the direction of the arrow.

In washing barrels and kegs, and particularly those which have contained beer or other fermented liquors, it is important that they should be thoroughly washed or rinsed on both the inside and outside. It is important that the water used for rinsing the insides of the barrels or kegs should be hot or warm, so that every particle of must or unpleasant taste which may have been occasioned by the kegs standing empty may be removed. It is important that some means should also be provided for advancing or moving the barrels forward, so that they may be treated by machinery and automatically from the commencement to the close of the operation. It is important that brushes or other means should be employed to thoroughly scrub and

cleanse the outside of the kegs as they are moving forward through the machine, so that they will be delivered fresh and clean. It is important, also, that a constant supply of water should be afforded for the outside of barrels to enable the scrubbing-brushes to thoroughly do their work. In my improved washing-machine I make provision for these various features and operations.

In making my improved washing-machine I make a frame A capable of holding and containing the various parts that enter into the construction of the machine, as hereinafter described. At preferably the front end of the machine I provide a tank or reservoir B, adapted to hold a sufficient quantity of hot or warm water. I also provide a tank or reservoir C, adapted to contain a sufficient quantity of cold water. This cold-water receptacle is located at any convenient point, preferably between the hot-water reservoir and the rear end of the machine.

I will in describing the machine from this point on describe the operation of the various parts as a keg or barrel is put through the operation of washing. When the keg is placed in the tank B containing the heated water, the bung and the cork-hole are of course open, and, owing to the fact that the bung-stave is heavier from being provided with an iron bung-bush and from having the riveted folded portions of the iron hoops arranged on it, the keg naturally assumes a position with the bung-hole down, so that it immediately fills with a sufficient quantity of hot water.

In the hot-water reservoir I arrange arms D of a proper size and shape to sufficiently encircle the barrel or keg being treated. These arms are mounted on a shaft *d*, which is provided with a crank *d'*, connected to a cam *d''*, arranged on a shaft E. This latter shaft is provided at one side with a worm-gear *e*, by which it may be rotated. As it rotates it causes the cams at certain intervals to rotate the shaft *d* sufficiently to lift the arms D and throw the keg or barrel, which they may lift up, forward onto the ways *e'*, so that it may proceed on its course. It rolls down these ways until it gets to two sets of rollers F. These rollers are mounted on shafts *f*, properly journaled in the frame-work of the machine, and are preferably beveled, so

as to keep the keg in a proper central position. The outer ends of the shafts are provided with gears f' , which engage with a gear f'' , arranged on a shaft f''' , placed intermediate of the shafts carrying the beveled rollers F. On the opposite end of the shaft f''' is arranged a chain or sprocket wheel f'''' , by which it may be rotated through means of a sprocket-chain. Other means, however, may be adopted, if desired, for rotating this shaft.

As the keg is rotated on the rollers F it is important also that it should be given an endwise movement, so as to cause the water in it to wash back and forth from one end of the keg to the other, and thus secure a complete rinsing of the keg. The most desirable endwise motion to attain is that which approximates or resembles the motion which a man would give the keg in his hands as he splashed the water from one end to the other. In order to secure this movement of the keg, I arrange under the shaft f''' a frame F' , which is provided with bearings F'' , which encircle the shafts f just outside of the rollers F. This frame is provided with an upward pin or stud immediately under the shaft f''' , and such shaft is provided with a hub F''' , provided with a diagonal groove in its surface, which fits over the end of the upwardly-projecting pin or stud. As the shaft f''' , with its hub F''' , rotates, therefore, the pin or stud following the diagonal groove causes the frame F' to be moved back and forth sidewise. This causes the bearings F'' to move the rollers F back and forth sidewise in a corresponding motion. This imparts to the keg resting on them the alternate back-and-forth endwise movement necessary to cause the water in it to be thrown from one end to the other, resembling, as I have said, the motion a man would give to it if the keg were being rinsed by hand.

After the keg has been rotated and thrown endwise on the rollers F a certain length of time arms G, of a size and shape to encircle the keg, are caused to rise and lift the keg and throw it forward, so that it may proceed to the next step of its course. In order to enable the arms G to rise and lift the keg and throw it forward, I mount them on shafts g , which are connected by a crank g' to a cam G' , mounted on a shaft G'' . This shaft is rotated by means of a worm-gear g'' or any other convenient means. I have shown the shafts E and G'' connected together by a rod or bar G''' as a means of holding them more firmly and securely in their bearings, although it is obvious that the rod may be dispensed with, and I only mention it because it is represented in the drawings and might not otherwise be understood. As the keg is lifted and thrown forward on the ways g''' it rolls onto the rollers H, which are preferably beveled like the rollers F to keep the kegs in a central position. As the keg moves onto these rollers they continue to rotate it, but

preferably at a greater speed. The rollers H are mounted on shafts h , provided with gears h' , engaging with a gear h'' on a shaft h''' , provided with a pinion h'''' , through which power is applied to it to cause it to rotate. The shaft h''' is preferably rotated at a speed fast enough to cause the rollers H to rotate more rapidly than the rollers F, above suggested, so as to impart a more rapid speed of rotation to the keg. While the keg is on these rollers H it is subjected to the action of brushes, by which its outside is thoroughly washed and scrubbed. As the brushes are intended to operate on the ends as well as upon the sides of the keg, I do not impart an endwise movement to the rollers H to throw the keg endwise, as when on the rollers F. Such movement would interfere with if not entirely prevent the operation of the brushes, as hereinafter described. The arrangement of the brushes will be seen from an inspection of Fig. 8 of the drawings. In that figure I have shown the brush H' arranged over the keg of a sufficient length and of a proper shape to bear against its whole length. This brush is mounted in a bar H'', extending across the machine and supported in an angle iron or arm H'''. (Shown more particularly in Figs. 2 and 4.) The lower end of this arm is provided with a small roller h'''' , that rests on a cam H'''. This cam is mounted on the shaft G'' , by which it is rotated. As the cam moves under the small roller its enlarged portion raises the angle irons or arms and causes the brush H' to be lifted up from the top of the keg; but when its smaller portion is under the small roller the brush is allowed to descend and bear against the surface of the revolving keg. The rotation of this cam is properly timed, so that the brush remains down and in contact with the keg the time desired to thoroughly scrub and cleanse it. In order to scrub the ends of the keg, I have arranged brushes I, mounted in arms I', which pass up through slots in the bar H'' and are pivoted or hung on a frame I'' at the top of the machine. The arms I' are hung in an inclined position, as shown in Fig. 8, so that as the bar H'' descends, as above described, it bears against the arms I' and forces their free ends (carrying the brushes) closer together. This presses the brushes I against the ends of the keg, so that they will operate upon it as it rotates. The bar H'' is provided with hangers I''', having small rollers i at their lower ends. When the bar H'' descends, these rollers come into contact with the surface of the keg and prevent the bar from farther descending. If the keg be large, the descent of the brushes will be the sooner stopped, while if it be small the brush will continue to descend until the rollers come into contact with it. Whether the keg being operated upon be large or small, therefore, I am always able to secure a proper adjustment of the brushes against it, although in making machines I prefer to provide in the adjustment of the brushes for

only two or three different-sized kegs. In the same way the rollers *i* in their contact with the surface of the keg insure the proper position of the brushes *I* against the ends of the keg.

In order to wet or drench the keg with water while it is being operated upon by the brushes, I run a pipe *J* across the machine over the keg being operated upon by the brushes, through which water may be carried, and I provide the pipe with a number of perforations to permit the water to flow out and fall on the top of the keg, preferably in advance of the brush. I also provide branches *j*, leading down from the pipe and turning toward the ends of the keg. The ends of these branches are also provided with perforations or small holes through which the water may be sprayed against the ends of the keg. The water may be supplied to the pipe *J* either from a hydrant or from a force-pump. In my machine I have shown such a pump *J'*, which may be operated by the same driving-power that operates the rest of the machine. The advantage of thus using a pump is that the water flowing from the kegs after they have been sufficiently rinsed may be again used for washing their outside surface. In cases where the supply of water is limited the employment of a pump in this way will be found useful. I have shown and described the arrangement of the brushes at a point in the operation of the machine after the kegs have been supplied with hot water. It is obvious, however, that the brushes could be arranged and the keg operated upon at any point in the machine. They could, in fact, be arranged in advance of the hot-water reservoir, so that the kegs would be thoroughly scrubbed and cleaned on their outsides before being introduced into the tank for their supply of hot water to cleanse their insides.

After the kegs have been rotated on the rollers *H* enough to have become thoroughly scrubbed and cleaned by the brushes the brushes are lifted off of them as the cam *H''''* comes around and the kegs are lifted up by arms *K* and thrown forward into the cold-water reservoir *C*. Here again they become partially filled, but this time with cold water. They are then lifted by arms *K'* and thrown forward on the ways *k*, whence they pass onto the rollers *K''*. These rollers are operated in a similar manner to the rollers *F*, heretofore described, and similar means are employed for giving the kegs an endwise movement to again thoroughly rinse their inside surface. It will therefore be unnecessary to again describe in detail the operation of the mechanism at this point.

After the kegs have rotated a sufficient length of time they are again lifted by arms *K'''* and thrown forward onto ways *k'*, whence they pass to the rollers *L*. These rollers operate like the rollers *H*, except that they are rotated at a slower rate of speed. As the rollers *L* form the last of the series, it becomes

important here to drain the water from the kegs, and to that end some means needs to be adopted to hold the kegs with their open bung-holes down. In Fig. 5 I have shown such means. A pivoted bar *L'*, having an upward-projecting finger *l*, is arranged at that point, so that the finger will enter the open-bung hole as the keg is rotated and hold it at that point. The pivoted bar is provided with a weight *L''*, that causes the finger to be moved up into the bung-hole when the keg has brought the bung to the right position. As soon as the finger enters the bung the rotation of the keg is arrested and the water in it flows out. In order that the keg may be held on the rollers *L* in such position that the finger may enter the bung-hole, no endwise movement is imparted to these rollers or to the keg while on them, but they are simply rotated, as are the rollers *H* under the brushes, where it is desirable to hold the keg in a certain determinate position with respect to the sides of the machine. After the keg has become sufficiently drained arms *M* are raised under it and it is lifted forward on the ways *m*. The arrangement and operation of the arms *M* are similar to those heretofore described, and need not therefore be again explained in detail. As the keg falls on the ways *M* it rolls down onto a track *N* and onto a sufficient distance from the machine to permit it to be received by an attendant, so that the cork may be again driven in and the keg set aside and ready for use. To engage and disengage the power with my machine, I have shown in Fig. 1 a belt *O*, by which power is applied, and a bar *P*, leading to the front end of the machine in easy reach of an attendant, and which connects with a lever *Q*, by which a clutch is thrown into or out of gear. Other means, however, for starting and stopping the machine may be employed, if desired.

I have above described my washing-machine with considerable minuteness and have explained many details and features of construction that could be easily changed without affecting the general plan and principle of my invention. I wish, however, to have it understood that my invention consists, in general terms, of a washing-machine in which the kegs and barrels, after being deposited in the first tank or water-reservoir to receive the necessary quantity of water, are carried by machinery and automatically over a series of rollers, in which they are rotated, and on some of the rollers given an endwise movement, and in which they are carried under the brushes, that are automatically brought against their outside surface until they have been sufficiently scrubbed, and then removed from them, so that they can be again carried forward on their course, and in which at a desired point they may be held stationary until the water has been drained from them and then passed on to a point where they may be received by an attendant. Whether the rollers be operated by worm gears and worm-

shafts, as I have shown them in my drawings, or by ordinary gears is a matter of no special importance, nor is it essential that but four sets of rollers be employed, as shown in the drawings of my machine, as a less or greater number could be used, if desired.

What I regard as new, and desire to secure by Letters Patent, is—

1. In a barrel-washing machine, the combination of several sets of rotatable rollers, means for automatically advancing the barrel from one set of rollers to the next succeeding set in the operation of washing, brushes adapted to be automatically advanced against and withdrawn from the outside of the barrel at a desired stage of the operation, and means for rotating the rollers and automatically advancing and withdrawing the brushes, substantially as described.

2. In a barrel-washing machine, the combination of several sets of rotatable rollers over which the barrel successively passes in the operation of washing, of which rollers some are simply rotatable and some are both rotatable and movable endwise alternately toward one side of the machine and then toward the other, and means for rotating the rollers and imparting the endwise movement to the desired ones, substantially as described.

3. In a barrel-washing machine, the combination of several sets of rotatable rollers over which the barrel successively passes in the operation of washing, at least one water-reservoir through which the barrel passes in its course and in which its interior is supplied with water, means for arresting the rotation of the barrel at a desired point with its bung-hole down to drain out the water, and means for rotating the rollers, substantially as described.

4. In a barrel-washing machine, the combination of several sets of rotatable rollers over which the barrel successively passes in the operation of washing, brushes adapted to advance against and to withdraw from the out-

side of the barrel at a desired stage of the operation, means for spraying the outside of the barrel with water while under the action of the brushes, and means for rotating the rollers and automatically advancing and withdrawing the brushes, substantially as described.

5. In a barrel-washing machine, the combination of several sets of rotatable rollers over which the barrel successively passes in the operation of washing, brushes adapted to advance against and to withdraw from the outside of the barrel at a desired stage of the operation, means for automatically adjusting the extent that the brushes advance to the size of the barrel, and means for rotating the rollers and advancing and withdrawing the brushes, substantially as described.

6. In a barrel-washing machine, the combination of several sets of rotatable rollers over which the barrel passes in the operation of washing, means for advancing the barrel automatically from one set of rollers to another from the beginning to the end of the operation, and means for rotating the rollers, substantially as described.

7. In a barrel-washing machine, the combination of several sets of rotatable rollers over which the barrel passes in the operation of washing, means for rotating the rollers, means for supplying the inside of the barrel with water and draining the same therefrom, means for supplying the outside of the barrel with water and subjecting it to the action of scrubbing-brushes, and means for advancing the barrel automatically from one stage of its progress to another from the beginning to the end of the operation and discharging it washed and cleaned both inside and out at the rear end of the machine, substantially as described.

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