

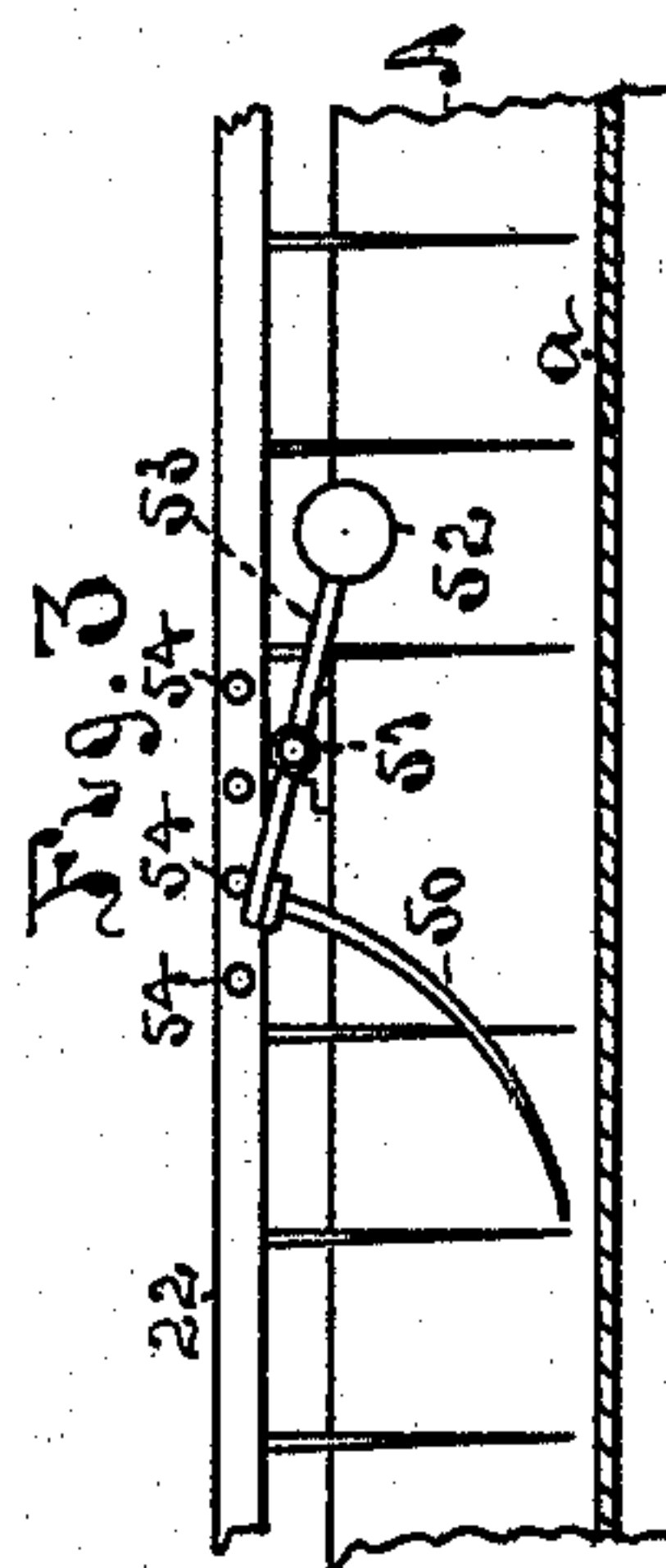
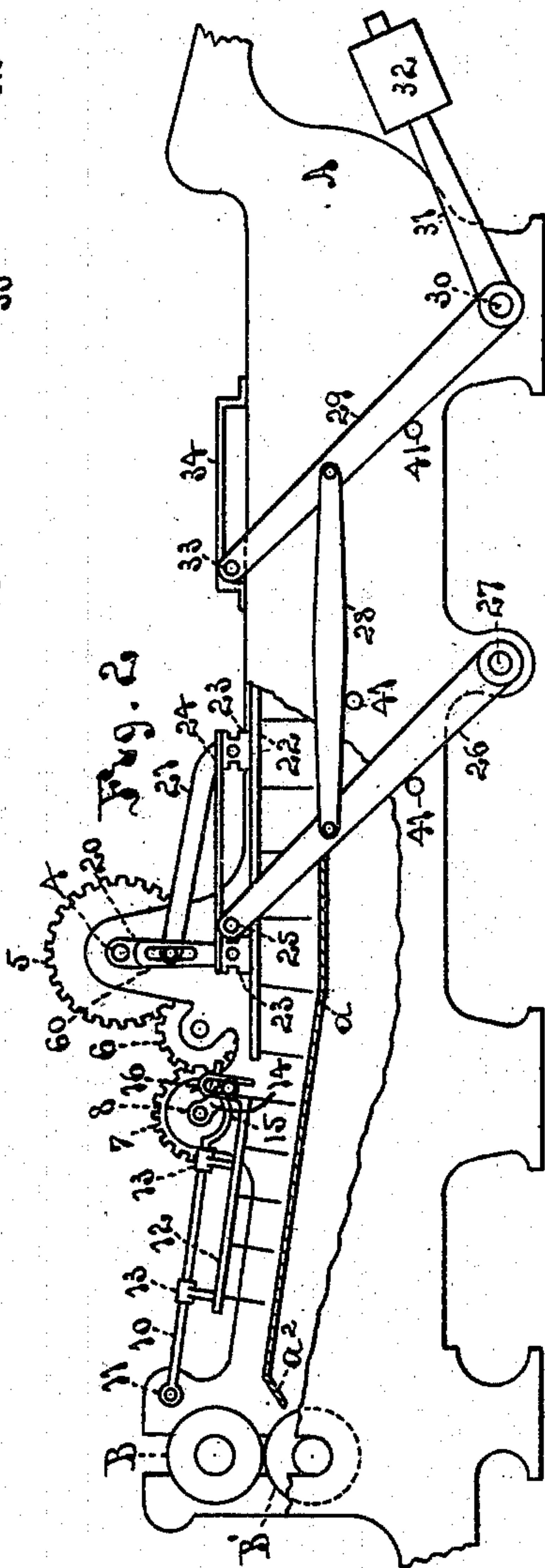
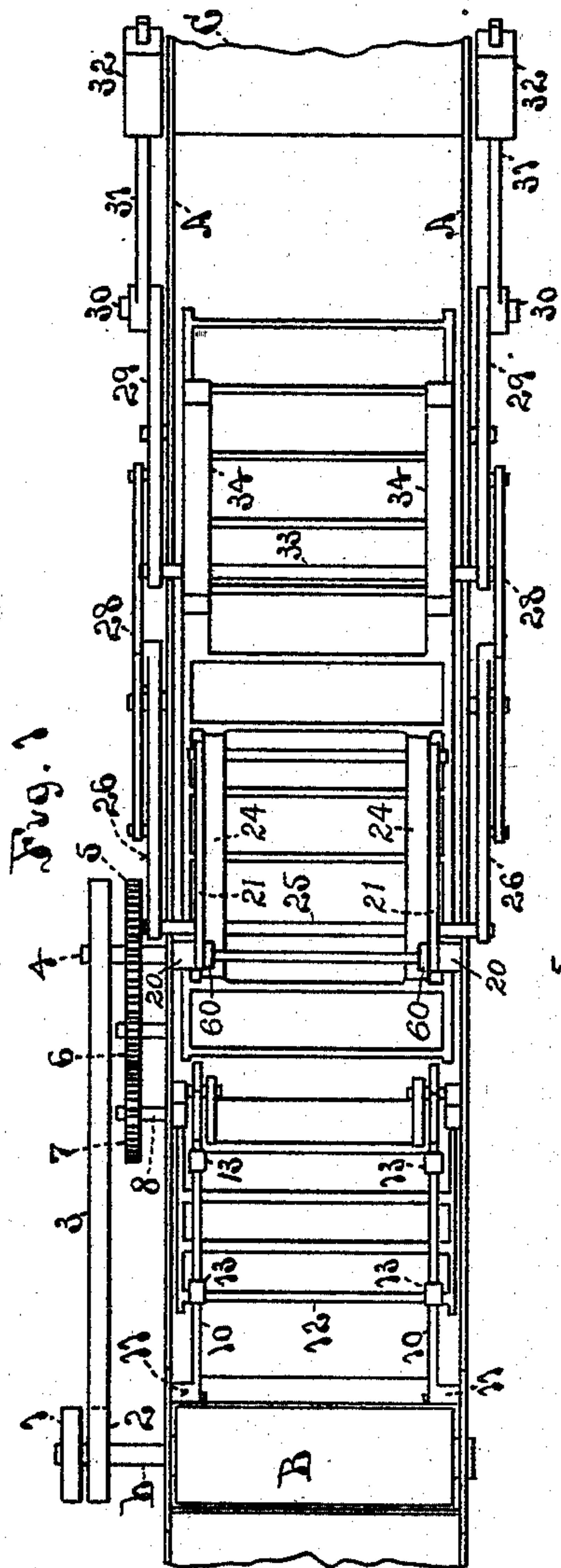
(No Model.)

2 Sheets—Sheet 1.

F. G. & A. C. SARGENT.
WOOL WASHING MACHINE.

No. 528,182.

Patented Oct. 30, 1894.



Witnesses

W. D. Brown
A. P. Ockington.

Inventors

Frederick G. Sargent
Allan C. Sargent

By *David Hall Rice*
Attorney.

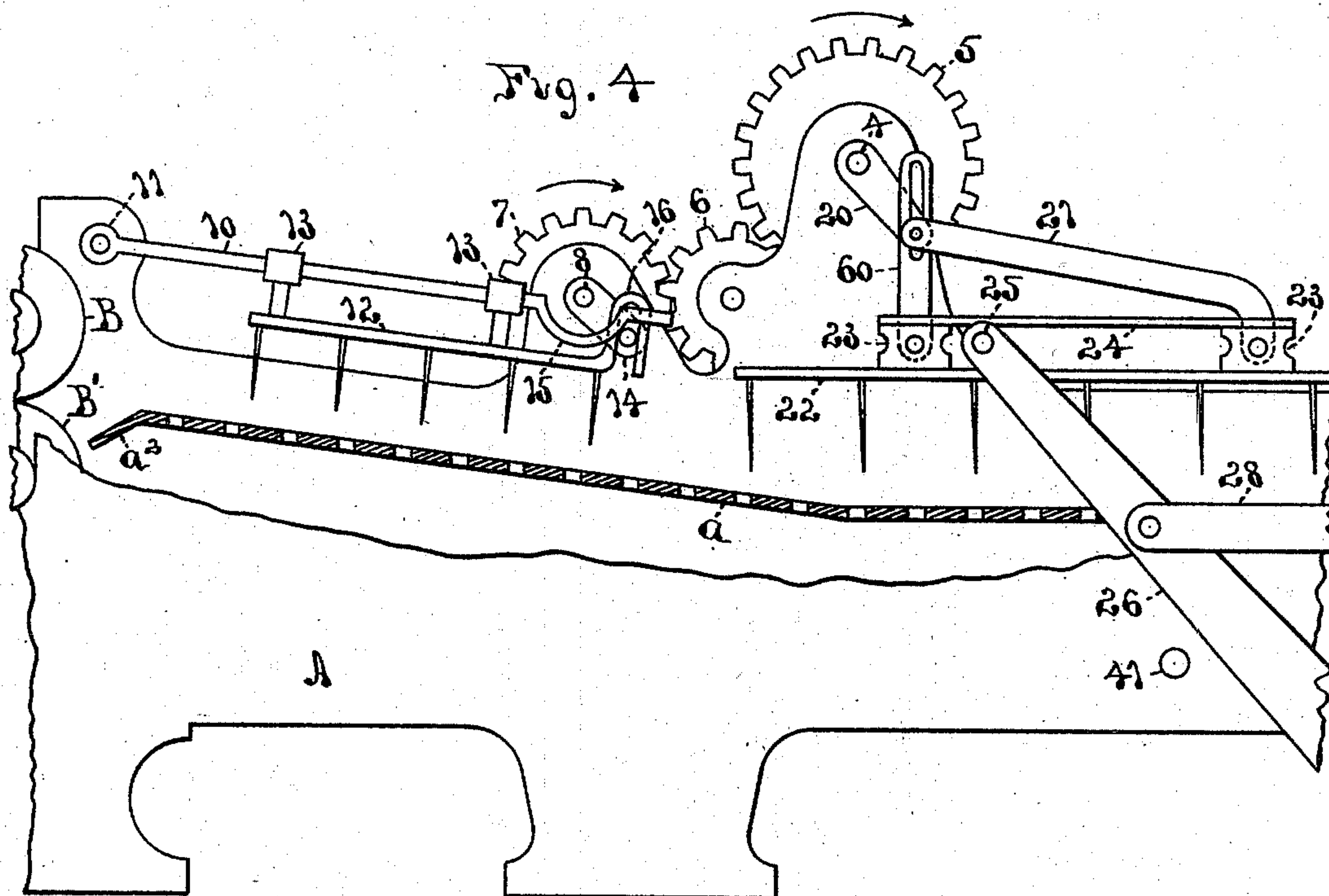
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UNITED STATES PATENT OFFICE.

FREDERICK G. SARGENT AND ALLAN C. SARGENT, OF GRANITEVILLE,
MASSACHUSETTS.

WOOL-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 528,182, dated October 30, 1894.

Application filed June 25, 1892. Serial No. 437,956. (No model.)

To all whom it may concern:

Be it known that we, FREDERICK G. SARGENT and ALLAN C. SARGENT, of Graniteville, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Fiber-Washing Machines, of which the following is a specification.

Our improvement relates to machines for washing wool and similar fibers, and it consists in certain new and useful constructions and combinations of the several parts of the same substantially as hereinafter described and claimed.

In the drawings:—Figure 1 represents a top plan view of a fiber washing machine constructed with our improvements. Fig. 2 is a side elevation of the same with a portion of the side broken away to show the construction of the parts. Fig. 3 is a side view of a stationary rake located in the bowl of the machine. Fig 4 is an enlarged view of part of a portion of Fig. 2, which shows the details of its construction more clearly.

A is the bowl of the fiber-washing machine constructed in the usual form, having a false bottom, *a*, placed at some distance above the bottom of the bowl in the usual manner, over which the fiber travels down the incline, *a*², to the squeeze rolls B, B'. The fiber is fed into the machine by the feed apron, C, and travels through it and is delivered out from the squeeze rolls.

Our improvement relates more particularly to the operating mechanism of the carriers or rakes and is as follows.

On the shaft, *b*, of the upper squeeze roll B, are mounted the driving pulley, 1, and the transmission belt pulley, 2, which conveys the power by the belt, 3, to the shaft, 4, on which a suitable pulley is mounted to receive the belt. On the shaft, 4, is mounted a gear wheel, 5, which meshes into the idler gear, 6, on a stud projecting from the frame, and this meshes into the gear, 7, on the shaft, 8, which drives the carrier. The carrier 12 is mounted on a pair of rods, 10, 10, which are pivoted at their ends, 11, to the frame so that their other ends may swing up and down. On these rods the carrier, 12, slides by means of the sleeves, 13, so as to convey the wool up the inclined portion of the carrier bed, and the carrier is

thus driven by the crank, 14, on the shaft 8. The free ends of the rods, 10, are bent or curved downward at 15, where the wrist pin of crank 14 traverses underneath them so as to coincide with the path of the crank in the lower part of its sweep, and one of the rods nearest to the gear wheel, 7, rests upon the wrist pin. The effect of this is that when the carrier is being moved forward by the crank, the wrist pin of which enters into the hook, 16, attached to the carrier, the pivoted rods 10 on each side are held in the same position by the wrist pin passing underneath the curved part, 15, of one of them, but when the wrist pin reaches the forward end of this curved part it engages under the straight part of the rod, and lifting its free end raises the carrier and the other rod with it, so as to pass over the fiber on the return motion of the carrier, and the curved part, 15, of the rod 10 now acts to oblige the crank to raise the rod and carrier considerably higher and drop it considerably quicker than if this part of the rod, under which the crank passes were straight. It will thus be seen that the entire forward movement of the carrier is made to be parallel with the inclined carrier bed, *a*, while the upward movement of the carrier is in the shape of an elongated semi-circle, although all these movements are accomplished by the crank, 14, while itself traveling in a circle.

On the inner end of the rod, 4, is attached a crank, 20, which carries on its outer end a wrist pin, which is held in the crank in the usual manner. Connected to this wrist pin is a pitman, 21, which is pivotally attached to the harrow, 22. It will thus be seen that as the crank moves forward the pitman, 21, on its end attached to the wrist pin must move the harrow to and fro with it. To lift the harrow on its backward movement and drop it into the fluid in the bowl before it moves forward, a link, 60, is pivoted at its lower end to the harrow and has a vertical slot in its upper end, through which the wrist pin of crank, 20, passes. This slot is so proportioned that when the harrow is moving forward and the crank is traversing the lower part of its throw the link does not affect the movement, as the harrow merely rests upon its counter-balanced supports and is drawn forward by

the pitman 21; but when the crank traverses the upper part of its throw its wrist pin moves to the upper end of the slot in link, 60, and raises the carrier above the washing fluid at the same time that the pitman, 21, pushes it backward.

In order to oblige the harrow, 22, to follow the same course in all its parts, the following device has been adopted:—On top of the harrow and bolted blocks, 23, 23, and on each side of the harrow these blocks are connected by longitudinal bars, 24, 24, which constitute guideways under which the rod, 25, moves back and forth and sustains the weight of the harrow. The rod, 25, is secured firmly at its ends on the swinging arms, 26, 26, which are pivoted at their lower ends on rock shaft, 27, passing through under the bowl in boxes supported by the sides of it. The arms, 26, have attached to the pivots on their center parts the links, 28, 28, which are attached at their other ends to similar arms, 29, 29, on each side of the bowl. These latter arms are pivoted on the rock-shaft, 30, which is supported in the lower part of the sides of the bowl, and passes through under the latter. To the rock-shaft, 30, are also attached the arms, 31, carrying on their ends the weights, 32, 32, in such a position as to nearly but not quite counterbalance the weight of the harrow, 22. A rod, 33, passes through the upper ends of the arms, 29, and under corresponding guide straps, 34, 34, to the guide straps, 24, so that the entire harrow will be sustained and carried on the same level in which position, up or down, it may be, because as the weights, 32, slightly underbalance the weight of the harrow or carrier, 22, as soon as the revolution of the crank, 20, permits the harrow will be carried downward by its own weight, and as its sustaining rods, 25 and 33, at the upper ends of the swinging arms, 26 and 29, must move together because of the connecting links, 28, the harrow is made to always retain its horizontal position, in whatever place longitudinally it may be for the time being. It will thus be seen that the rods 25 and 33 serve as the sustaining bearings of the carrier in moving forward through the fluid in the bowl. The slot in the upper end of the link, 60, in conjunction with the stops, 41, 41, projecting from the sides of the bowl, serve to produce a horizontal movement of the harrow, 22, during the lower portion of the sweep of the crank, 20, because the stops hold the links and rods 25 and 33 stationary. It will be seen that by this construction the rods, 25 and 33, serve as supports, on which the harrow progresses during its forward movement in a direction substantially parallel with the bottom, α , which supports the fiber, and that there is thus produced from the circular or rotary movement of the driving and sustaining mechanism a longitudinal movement of the harrow 22.

The strain on the wrist pin of the crank,

20, in lifting the harrow may be made very small because the weights, 32, 32, can be made to so nearly balance that of the harrow, and it may be adjusted by moving the weights in and out on the arm, 31, with any desired degree of nicety.

Inside of the bowl, in order to submerge the wool, we hang the rake, 50, upon an arm, 53, which is itself supported near its center upon the cross shaft 51. (See Fig. 3.) This cross shaft turns in bearings attached to each side of the bowl. On the other end of the arm, 53, is attached the weight, 52, which is made heavy enough to a little more than counterbalance the rake 50. The teeth of the latter are so arranged that the teeth of the harrow 22 will move up and down and back and forth between them. The arm 53 and its weight 52, and the teeth of the harrow 22 are also so arranged that the latter will move up and down, and back and forth freely past the arm and weight. This is accomplished by setting the teeth in this part of the harrow 22 wide enough apart, transversely of it, to leave room for the arm and weight between them. The to and fro movement of the harrow 22 and its teeth is also so arranged that its teeth will not come in contact with the cross shaft, 51, the teeth on one side not quite coming up to it on the forward movement and the teeth on the other side not quite going back to it on the backward movement of the harrow.

In the side of the harrow, 22, are placed small stops or pins, 54, which strike against the head part of the rake, 50, and press it down while the fiber is carried underneath its tines by the teeth of the harrow 22; the tines of the rake, 50, being made curved so that the wool will easily pass under them. This construction causes the harrow, 22, to draw any floating bunches of wool down under and beyond the curved tines of the rake, 50, and thus insures their being well submerged and soaked by the washing fluid, while at the same time the oscillating motion given to the rake by the pins, 54, allows larger bunches of wool to be drawn under it and churned up and down, than if the rake was fixed and did not vibrate up and down as described. This attachment is shown in Fig. 3 as applied to the bowl, and may be omitted where wool is washed which is not in bunches, which float on the surface of the washing fluid.

What we claim as new and of our invention is—

1. In a fiber-washing machine, the combination of the carrier bed, α , the pivoted rods, 10, attached to the frame, one of them being constructed with the curved portion, 15, the carrier, 12, arranged to slide to and fro on said rods and provided with a hooked or curved stud, 16, and the crank, 8, constructed to have its wrist pin engage with the stud, 16, of the carrier and traverse around the curved

part, 15, of the rod, 10, and lift the latter substantially as described.

2. The combination of the bowl, the harrow provided with suspension straps or guide-
5 ways, supporting rods passing across the bowl through the said guideways and each having its ends attached to the free ends of a pair of arms whose other ends are pivoted to the machine, and links connecting the pairs of arms
10 so that all the arms shall move in concert.

3. The combination of the bowl, the harrow provided with suspension straps or guideways, pairs of supporting arms mounted on rock shafts and having their free ends pro-
15 vided with means for engaging with said guideways, and links connecting the pairs of

arms so that all the arms shall move in concert.

4. The combination, in a fiber-washing machine, of the bowl, A, the harrow, 22, and the
20 swinging pivoted rake, 50, within the bowl provided with teeth curved toward the feed-out end of the same, in such position that the teeth of the harrow, 22, on that side may enter between those of the rake, 50, and draw
25 the fiber through underneath the same, substantially as described.

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