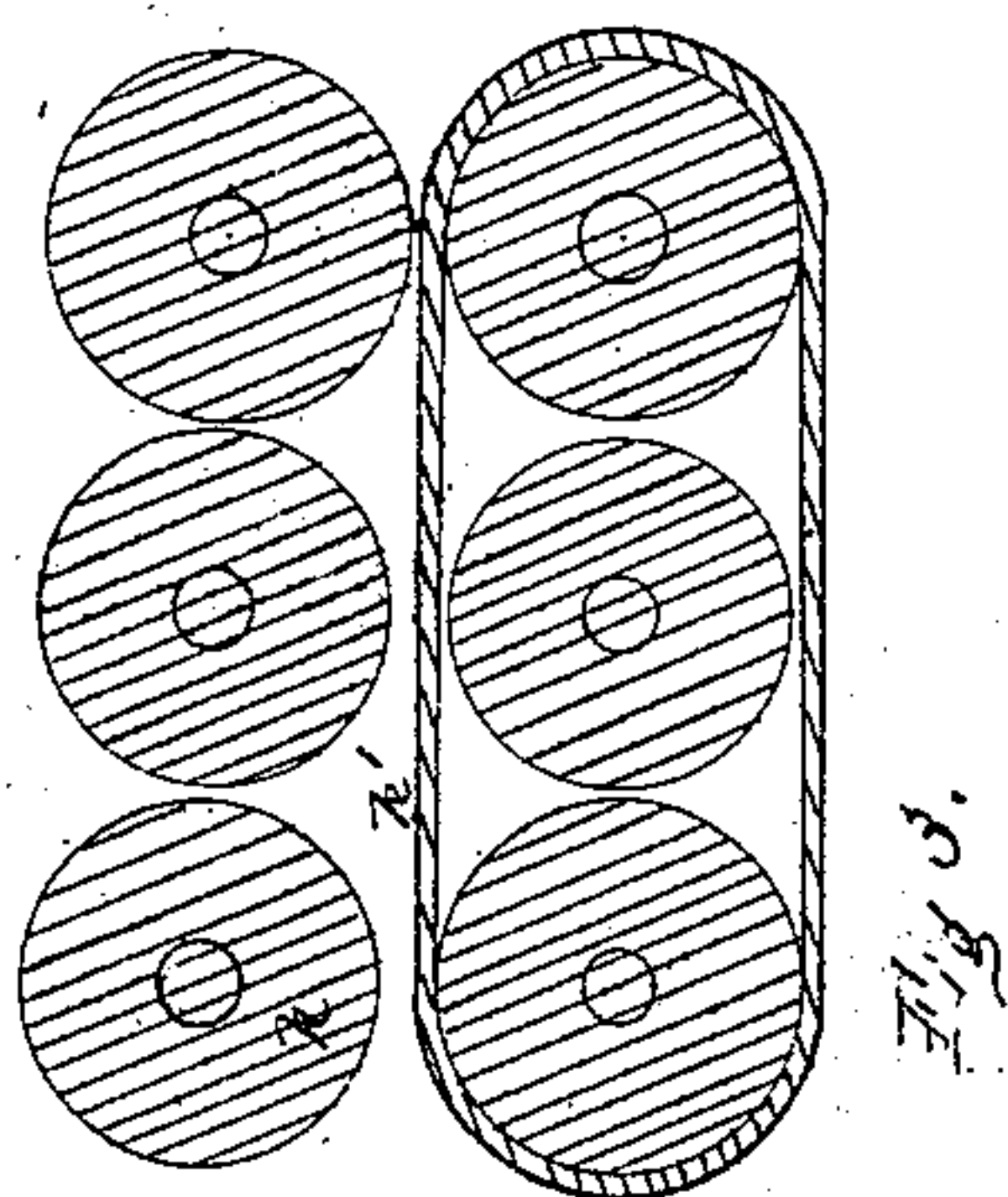
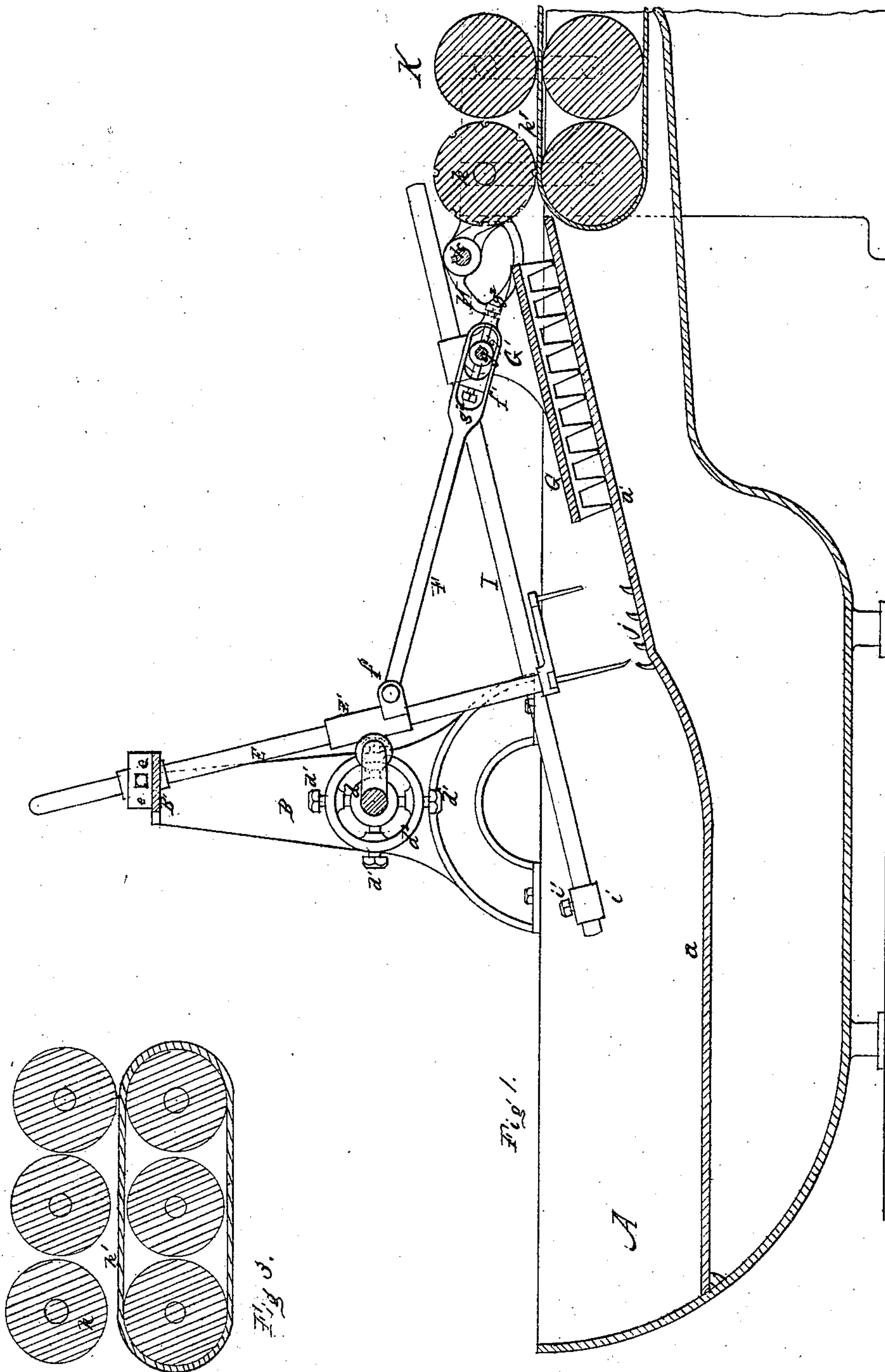


J. K. PROCTOR.
Wool Washing-Machines.

No. 133,481.

Patented Nov. 26, 1872.



WITNESSES.

George E. Upham.
Jos. R. Loomis.

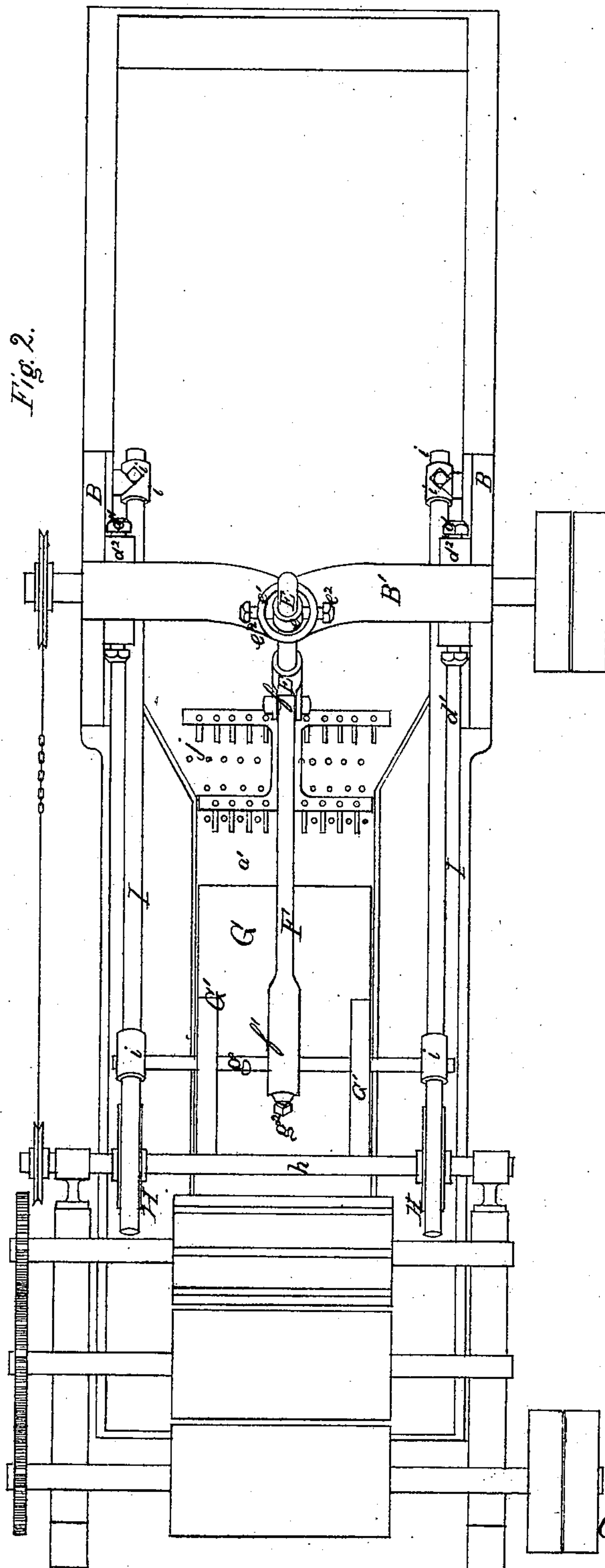
INVENTOR.

J. K. Proctor
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UNITED STATES PATENT OFFICE.

JOSIAH K. PROCTOR, OF PHILADELPHIA, PENNSYLVANIA.

IMPROVEMENT IN WOOL-WASHING MACHINES.

Specification forming part of Letters Patent No. 133,481, dated November 26, 1872.

To all whom it may concern:

Be it known that I, JOSIAH K. PROCTOR, of Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented new and valuable Improvements in Machines for Washing Wool and other Fibrous Substances; and I do hereby declare that the following is a full, clear, and exact description of the construction and operation of the same, reference being had to the annexed drawing making a part of this specification, and to the letters and figures of reference marked thereon.

Figure 1 of the drawing is a representation of a longitudinal section of a machine constructed with my improvements. Fig. 2 is a plan of the same. Fig. 3 is a detached view of the press-rollers.

My invention relates to that class of machines in which the wool is taken from the bowl by means of a series of swinging rakes and conveyed to an inclined chute, whence it is transferred by a reciprocating carrier to the press-rollers. The object of my improvements is to simplify the construction of machines of this class so as to lessen their cost, and also to make them more durable and efficient. My improvements consist in the construction, combination, and arrangement of the several parts, as hereinafter more fully described.

In machines of this class, as heretofore constructed, the shaft which moves the swinging rake, already mentioned, is supported only on one side of the bowl, the result being that a great strain is sustained upon that side, to resist which the several parts have to be made very heavy. I have improved this construction by providing bearings for the rake-shaft at each end, or on both sides of the bowl, whence I am enabled to make the several parts of less weight than formerly. The strain upon the parts is also lessened, thereby decreasing the danger of total disarrangement.

My second improvement has reference to means for giving the necessary to-and-fro motion to the carrier; and consists in actuating said carrier from the rake-lever or from the crank-shaft on which said lever is hung.

My third improvement has for its object the simplification of the parts by which the carrier is raised from the wool after delivering the latter to the press-rollers, and enabled to

travel above the chute until it reaches the retaining-teeth; and consists in the combination of the carrier with certain devices for obtaining the object sought, said devices comprising cams by which the carrier is raised, and swiveled arms on which it slides to the desired position.

My next and fourth improvement relates to the pins or teeth which serve to retain the wool deposited upon the chute until taken hold of by the carrier. Heretofore these pins have been made and operated in a costly and cumbersome manner, being arranged on reciprocating arms by which they are alternately forced through and withdrawn from openings in the chute. Having found that this reciprocating motion may be dispensed with and a great saving thereby effected, I have made my teeth in form as hereinafter described, and affixed them rigidly on the upper surface of the chute—a construction and arrangement which answers the purpose admirably.

My other improvements relate to the construction and arrangement of the press-rollers, the object sought being to retain the scouring-liquor in use a longer time than has been heretofore found possible. I will remark that the liquor employed is found to possess its best scouring properties after it has been in use for some time, and for this reason, as well as on account of the expense, trouble, and delay incident to changing it, it is desirable to retain said liquor for use as long as possible. The scouring-liquor, as observed, after it has been in use for some time possesses its best scouring properties; but it becomes thick and “slippery” with grease or animal matter to such a degree that the wool taken from it will not be seized by the press-rollers heretofore employed, said rollers being usually made large, heavy, and smooth, and arranged close together so as to squeeze thoroughly. By my peculiar construction and arrangement of press-rollers, which will hereinafter be more fully described, the wool fed to the press-rollers, no matter how thick or greasy the scouring-liquid may be, will be taken hold of by said rollers and thoroughly squeezed, thus enabling me to use the scouring-liquid for a much longer time than has been heretofore possible.

In carrying out this improvement I have

substituted for a single pair of large rollers a series of lighter and smaller rollers. The upper roller of the first pair I make fluted. The whole series of lower rollers is covered by an endless apron, while I design arranging the whole of the rollers in such manner that the distance between each pair—an upper and a lower roller together constituting a pair—shall diminish as they recede in order from the carrier.

In the drawing, A shows the bowl that contains the liquid in which the wool is washed or scoured, *a* being a raised platform in the same, having an inclined part or chute, *a'*. This incline I make with a less angle than is usually given, for a reason which will be presently explained. The general construction heretofore was such that it was necessary to give an angle of, say, thirty degrees to the chute. To retain the wool at such an angle it was found necessary to use the retaining-pins, which, to operate effectively, were required to be made of considerable length. In order, however, to permit the carrier to work it was found necessary to arrange these long pins so that they could be withdrawn through the chute. A great defect incident to this construction is that in withdrawing, the pins carry a considerable quantity of wool with them, by which they soon become clogged and inoperative. My construction enabling me to give a much less incline, say, fifteen degrees, to the chute, I can use short pins and yet retain the wool perfectly, at the same time not interfering with the working of the carrier. B B are the standards, in which are located the bearings of the crank-shaft C, which operates the swinging rakes. These standards are united by a brace, B', which is curved at its center, as shown. C is the crank-shaft, and *d* the boxes in which it turns, said boxes being sustained between the screws *d*¹, which pass through suitable holes in the bosses *d*², forming part of the standards B. By means of these screws the axle can be adjusted in any desired position. E is the rake-lever, there being as many rakes and levers of this kind employed as the length of the bowl may render desirable. This lever passes through and is rigidly connected to the box and cap E', in which box the crank-shaft C turns. The lever E' also passes through the sleeve *e*, which is sustained in the boss *e*¹ by means of the screws *e*², which afford adjustment, as may be required. Motion being communicated to the crank-shaft, the rake is alternately brought forward, raised, and again restored to its first position, the wool being carried along as the rake advances and left upon the chute when the rake recedes. F is an arm, swiveled at *f* and provided with a slot, *f'*, at its other extremity, through which passes the carrier-rod *g*. This rod passes through a box, *g*¹, located in the slot already described, said box being sustained by screws *g*², applied as shown, one of said screws passing through

the end of the arm, and the other through a partition, which is made fast in the slot. By means of the box the arm F is enabled to turn readily on the rod, while any necessary adjustment of said arm with reference to the carrier is obtained through the medium of the screws. G is the carrier, the lower surface of which is studded with teeth. This carrier has vertical sides or wings, G', through which passes the rod *g* to the sleeves *i*¹ upon the guide-rods I. The sleeve, rod, and carrier-wings are all rigidly connected to prevent the carrier from turning or dropping at one end when raised. H H are cams, turning with the shaft *h*, which receives motion by a chain from the crank-shaft C. These cams are grooved on their peripheries, in which slide the guide-rods I, swiveled at *i*, and made adjustable by means of the screws *i*².

The carrier having been brought to its most forward position, as shown in the drawing, is raised by the cams, which elevate the guide-rods I; the crank-shaft C as it turns draws with it the carrier, which is dropped upon the wool at the teeth *j*. These teeth are made in the form shown, being pointed and bent forward, which prevents the wool deposited upon them from sliding back, but, at the same time, permits it to be easily drawn in the direction of the press-rollers. These rollers are shown at K. The upper roller *k* of the first pair is made fluted, as shown, while the series of lower rollers is provided with an endless apron, *k'*.

It is designed to arrange these rollers, as shown in Fig. 3, so that the distance between each pair shall diminish as they recede from the carrier, the first two being located some distance apart to allow free ingress to the wool. The apron *k'* will cause the wool to be carried back with certainty, and also prevents clogging between the lower rollers, while the last pair of rollers, being placed closely together, insures thorough squeezing.

If desirable, all the upper rollers may be fluted like the first; but this I do not deem essential to the working.

The operation of the machine is easily understood. The wool is taken from the bowl and carried along by the swinging rakes to the carrier, by which it is further conveyed up the chute to the press-rollers, by which it is thoroughly squeezed.

What I claim as my improvements, and desire to secure by Letters Patent, are—

1. In combination with the rake-lever and crank-shaft of a wool-washing machine, the double standards B B, for the purpose set forth.
2. The combination of the rake-lever E and carrier G with the arm F, substantially as shown and described.
3. In combination with the carrier G, the cams H and swiveled guide-rods I.
4. The combination of the inclined chute *a'*, when provided with rigid pins *j*, the rake-

lever E, and carrier G, as shown and set forth.

5. In a wool-washing machine, the arrangement of a series of press-rollers in the manner described, namely, with a diminishing distance between the upper and lower rollers as they recede from the carrier.

In testimony that I claim the above I have hereunto subscribed my name in the presence of two witnesses.

JOSIAH K. PROCTOR.

Witnesses:

C. R. LINDSAY,
M. DANL. CONNOLLY.