

F. G. SARGENT.
Wool-Washing Machine.

No. 227,928.

Patented May 25, 1880.

Fig. 1.

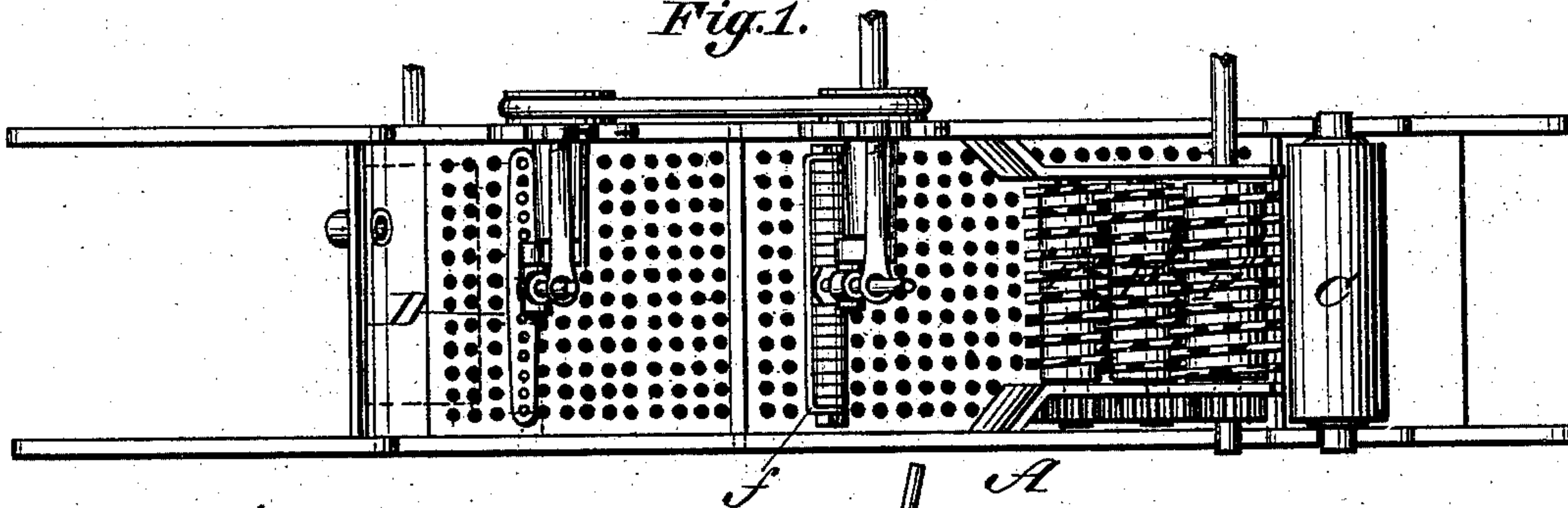


Fig. 2.

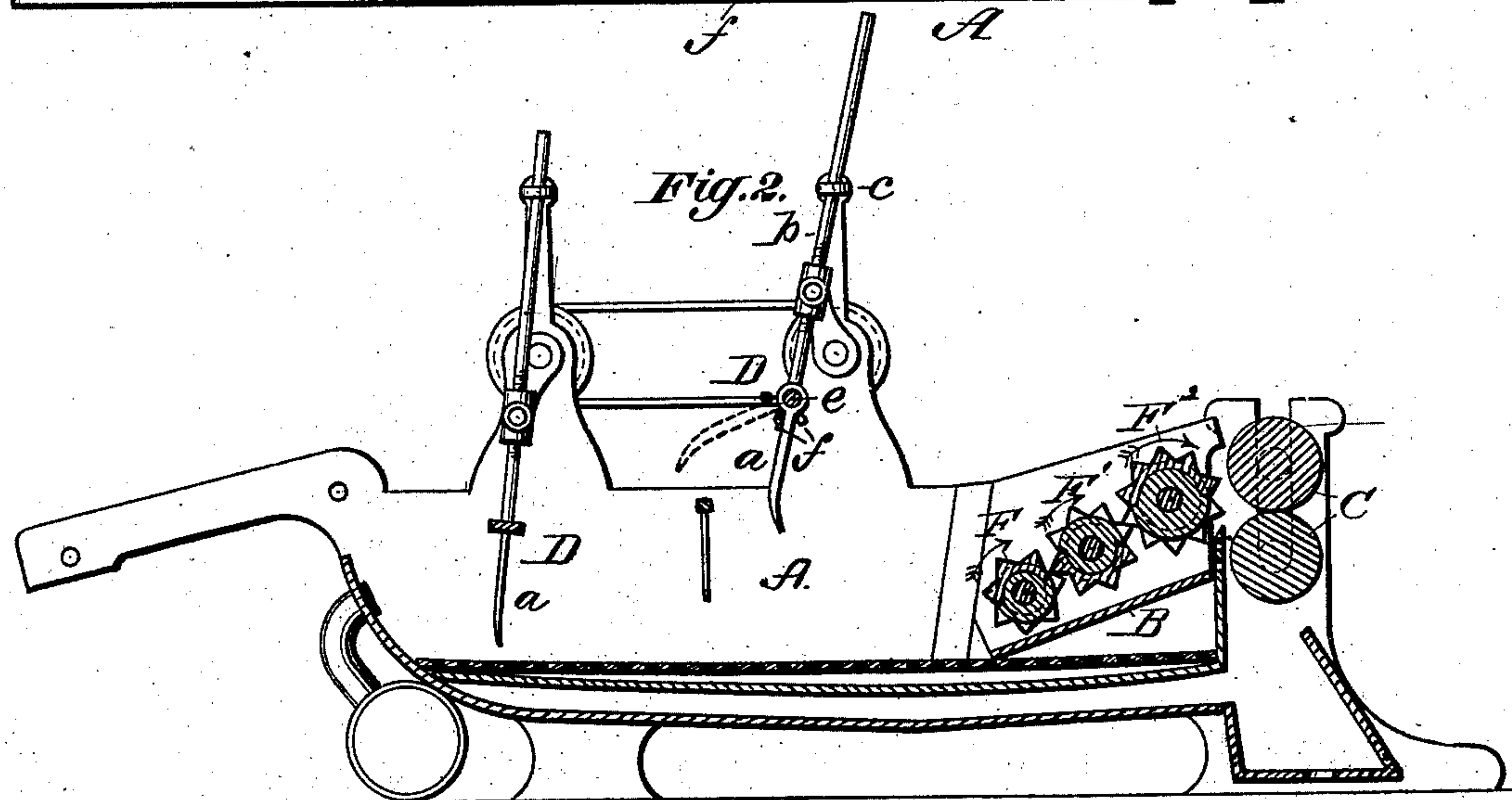


Fig. 4.

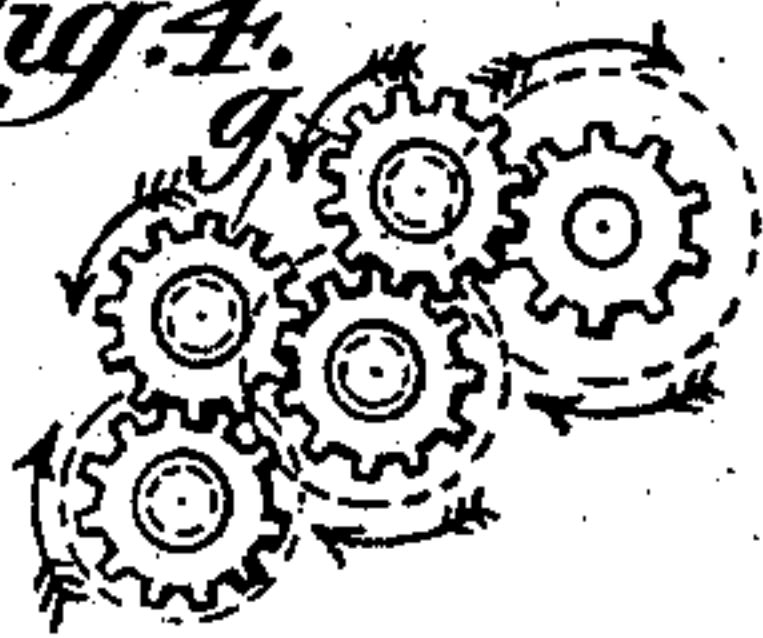
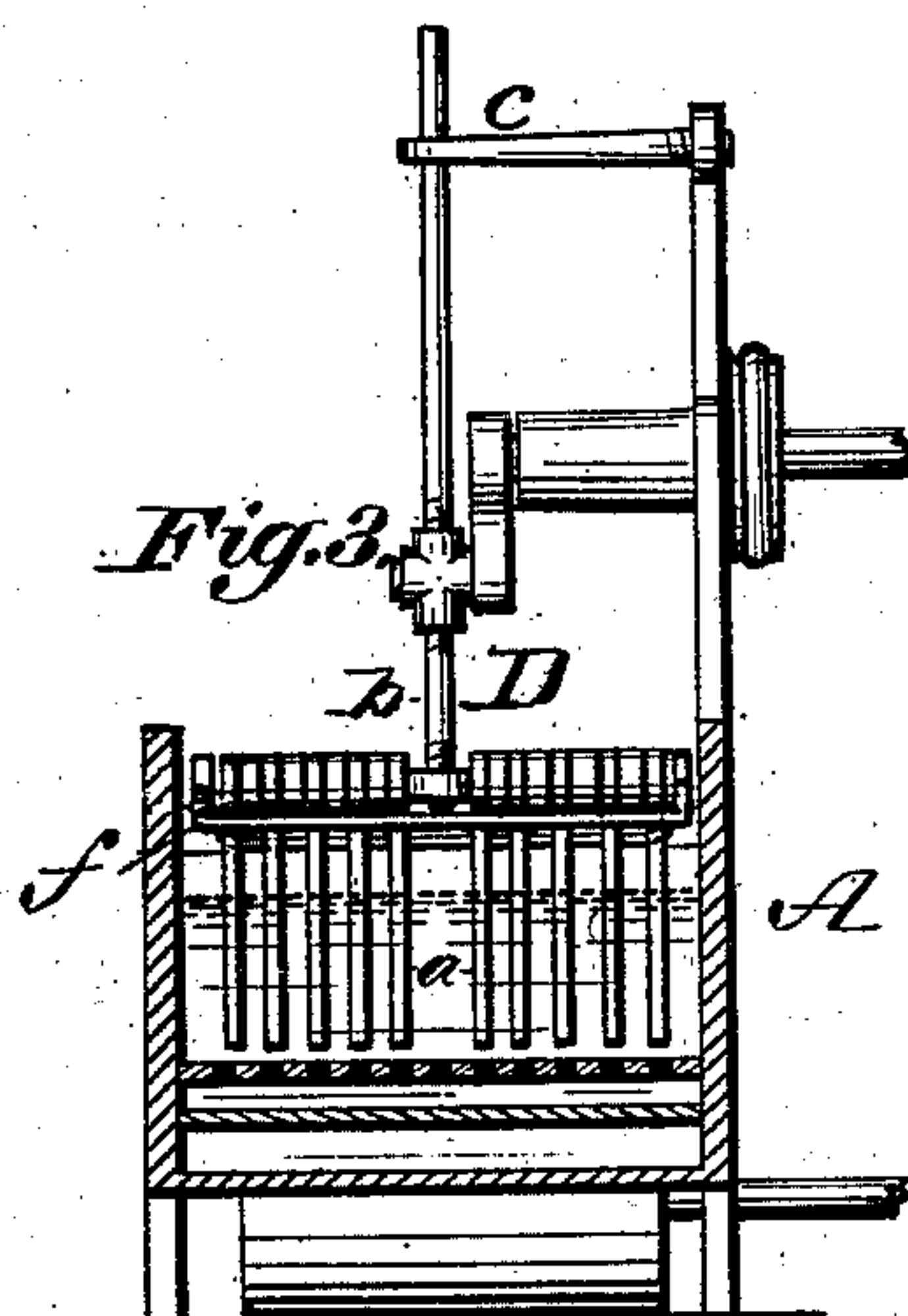


Fig. 3.



Witnesses:

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UNITED STATES PATENT OFFICE.

FREDERICK G. SARGENT, OF GRANITEVILLE, MASSACHUSETTS.

WOOL-WASHING MACHINE.

SPECIFICATION forming part of Letters Patent No. 227,928, dated May 25, 1880.

Application filed September 15, 1879.

To all whom it may concern:

Be it known that I, FREDERICK G. SARGENT, of Graniteville, in the county of Middlesex and State of Massachusetts, have invented certain Improvements in Wool-Washing Machines, of which the following is a specification.

The object of my invention is to construct the machine in such manner that it may be charged from time to time with large masses of fiber, so that the latter may remain therein and receive a thorough soaking before being discharged, and to secure a gradual, safe, and automatic discharge of the fiber from the mass.

To this end my invention consists in providing the swinging rakes or carriers, such as are commonly used in this class of machines, with spring-teeth so constructed that when subjected to severe strains they will swing backward and pass over the top of the fiber, and then at the next stroke of the rake act again upon the mass, and so on repeatedly.

In order to secure a more uniform and certain delivery of the fiber to the squeezing-rolls, I provide, in place of the customary elevating or discharging mechanism, a series of horizontal delivery-rolls, each having a speed greater than that of the preceding roll.

Except in the features constituting the subject of my present invention, the machine may be of any ordinary or suitable form and construction, the machine represented in the drawings being of the common and well-known Sargent type.

Figure 1 represents a top-plan view of the machine with my improvements embodied therein, various minor details unnecessary to the understanding of my invention being omitted. Fig. 2 represents a longitudinal central vertical section of the machine. Fig. 3 represents a face view of the rake and a cross-section of the body. Fig. 4 illustrates the arrangement of gearing by which the elevating-rolls are driven.

A represents the body or bowl of the machine, provided with the usual perforated false bottom, and at one end with the inclined plate B, above which the fiber is carried upon rolls to the squeezing and discharging rolls C.

The bowl or body is of large size and con-

siderable length, so as to contain a large mass of fiber, which is fed gradually through the same from the receiving to the delivering end by means of the swinging rakes or carriers D. These carriers each consist, as usual, of a series of teeth, *a*, attached to the lower end of a rod, *b*, which is mounted at its middle on a vertically-rotating driving-crank, and arranged to slide at its upper end through a fixed guide, *c*, whereby the teeth are carried downward and forward, and then elevated and carried backward to their original position, preparatory to another action upon the fiber.

Ordinarily the teeth of the carrier are made rigid or slightly elastic, in consequence of which they fail to act to the best advantage in urging the fiber forward, and oftentimes become stopped and broken when they encounter a very compact mass of material. The teeth of my rake are therefore hinged or pivoted on a carrying-arm, and held in position by means of a spring, which is given ample strength to hold the teeth properly to their work, but which will yield and permit them to assume a horizontal backward position when subjected to excessive resistance. This yielding action of the teeth permits the motion of the rake to continue uninterruptedly, the teeth being withdrawn and carried over the fiber and thrust into or against the same at the rear, and so on repeatedly. These successive actions of the rake serve to turn, agitate, and manipulate the mass in such manner as to insure a proper action of the delivering devices and a steady gradual separation and discharge of the fiber.

In the drawings the teeth are shown with their upper ends perforated and slipped loosely upon a rod or shaft, *e*. A spring, *f*, extending across the rake from side to side, and secured to the ends of rod *e*, serves to hold them forward in an operative position, and a like spring, *f*, bearing against them on the front, holds them from swinging forward in advance of their usual position, except when subjected to strain from the rear—as, for example, in the event of their encountering the fiber during their retrograde movement.

The teeth may be hung in any other suitable manner, and springs of any other suitable form

and arrangement employed, provided the same action of the teeth is secured.

It is to be understood, regarding the action of the yielding teeth, that they are to yield in such manner and to such extent as to pass over the mass of fiber, and they are not to be confused with teeth which are made of slightly elastic material, so as to yield to a very limited extent.

The rolls by which the fiber is elevated and delivered to the squeezing-rolls are shown at $F F' F^2$. They are mounted transversely above the inclined plate or apron B, and have their ends provided with pinions acting in connection with intermediate idle-pinions g , as shown in Fig. 4, whereby they are all caused to turn in the same direction, so as to take up the fiber and carry it upward upon their upper faces.

Motion may be communicated to the series by a special pulley and belt, or by any suitable devices from any part of the machine.

The rolls increase successively in size toward the squeezing-rolls, so that the surface of each moves faster than that of its predecessor; but the same result may be attained by gearing rolls of the same size to run at different speeds. By causing the surfaces to have an accelerated movement as the squeezing-rolls are approached the fiber is disentangled, straightened, and delivered to the squeezing-rolls in much better shape than would otherwise be the case.

The drawings represent the rolls with spirally-arranged teeth, those of one roll working between those of the other rolls; but the teeth may be changed in form and arrangement, or, instead of teeth, a roughened surface of a different character produced on the rolls.

While the best results are secured ordinarily by causing the rolls to pass the fiber above them, they may in special cases have their motion reversed to carry the fiber beneath them on the inclined plate.

I am aware that rolls traveling at successively greater surface-speeds, and serving to replace the more common carrier, are not new, and I lay no claim thereto.

Having thus described my invention, what I claim is—

1. In a wool-washing machine, the combination of a bowl or tank and a circulating rake or carrier to advance the fiber in the bowl, provided with backwardly-yielding teeth having a spring-support, whereby the forward pressure upon the fiber is maintained within proper limits.

2. In a wool-washing machine, the combination of a bowl or tank and a circulating rake or carrier to advance the fiber, having forwardly-yielding spring-supported teeth, substantially as described, whereby the loosening of the fiber during the backward travel of the rake is prevented.

3. In an organized machine for washing wool, the combination of a bowl or tank and a carrier-rake therein, provided with a series of pivoted teeth, and a single spring, applied in the manner described and shown, to retain all the teeth normally in an operative position.

FREDERICK GRANDERSON SARGENT.

Witnesses:

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