

(No Model.)

W. E. SHARPLES.

CLEARER FOR REMOVING WASTE, &c., FROM THE TOP OF SPINNING
FRAMES, &c.

No. 396,616.

Patented Jan. 22, 1889.

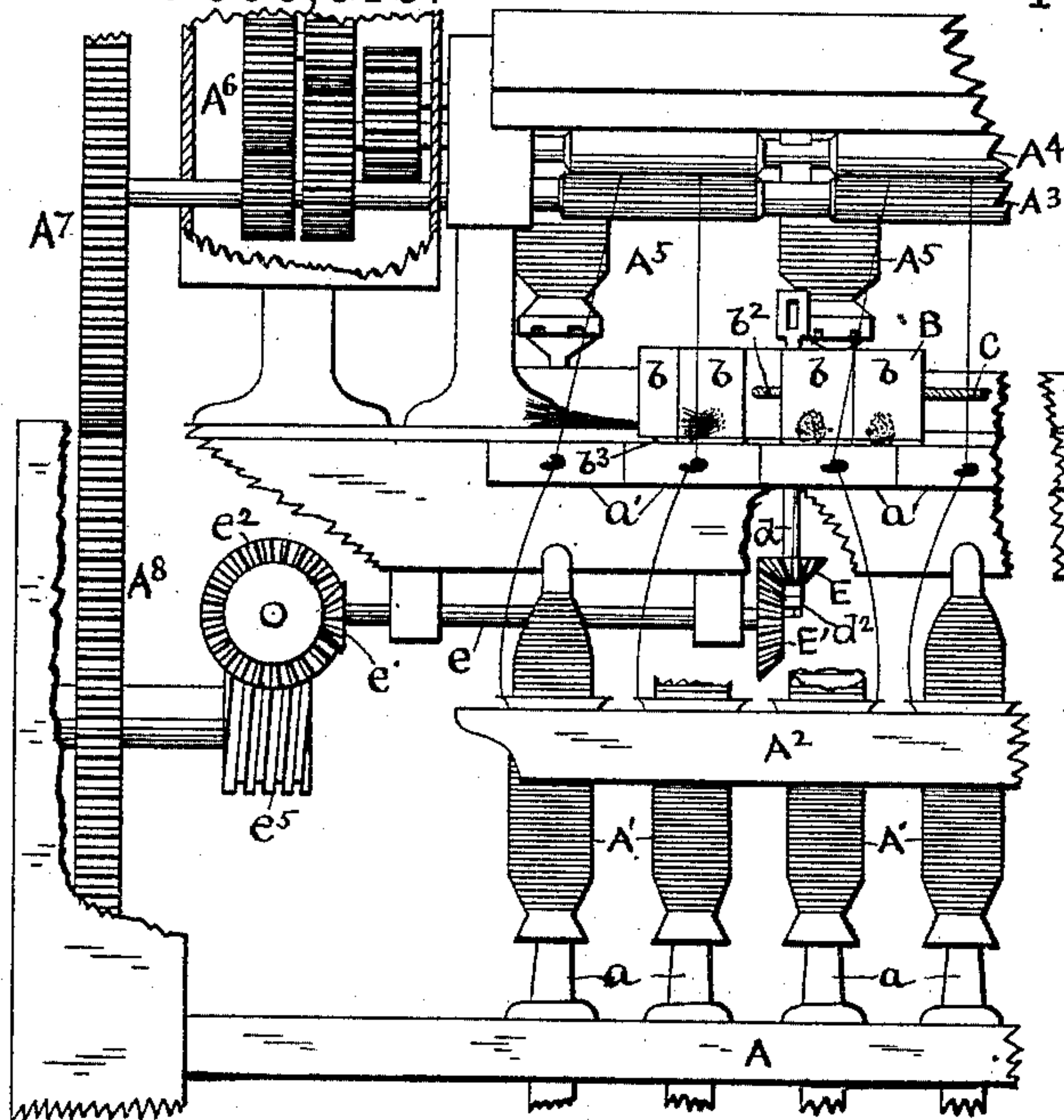


FIG. 1.

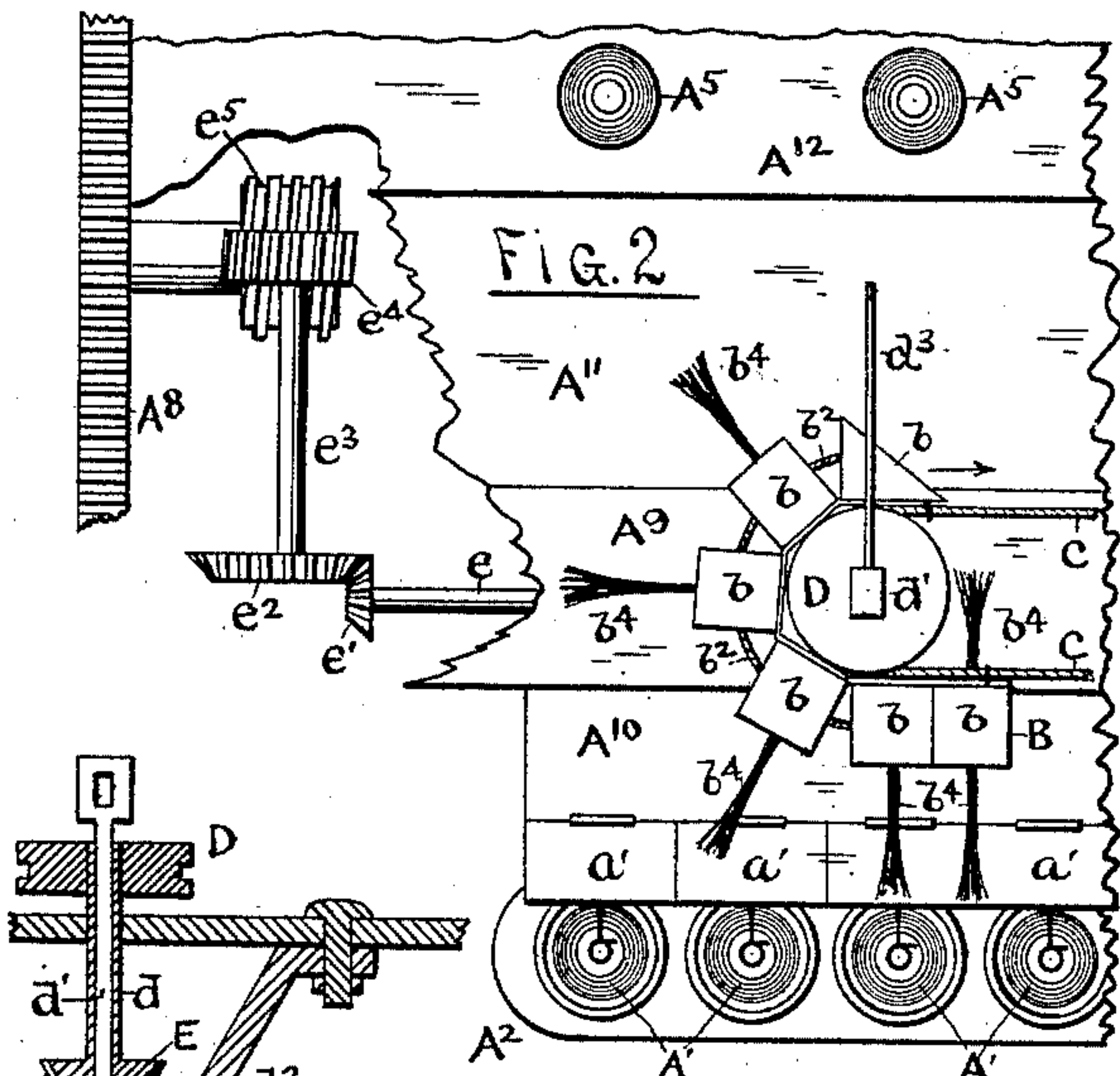
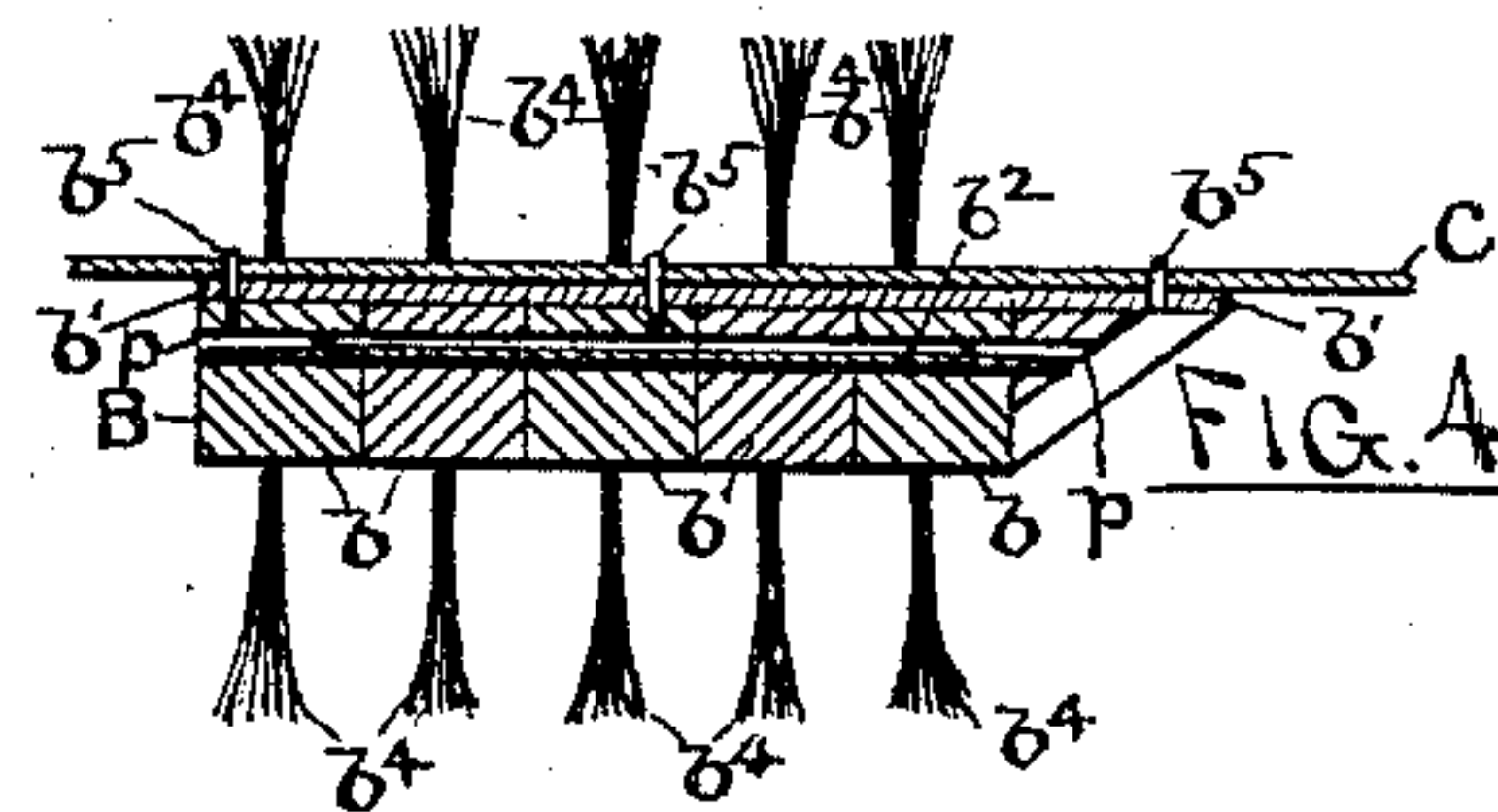
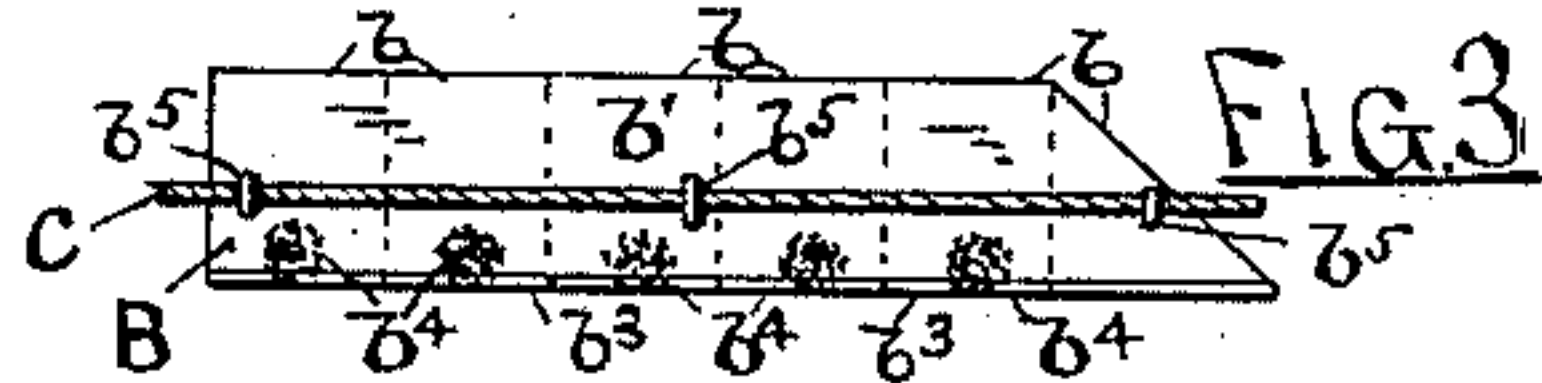
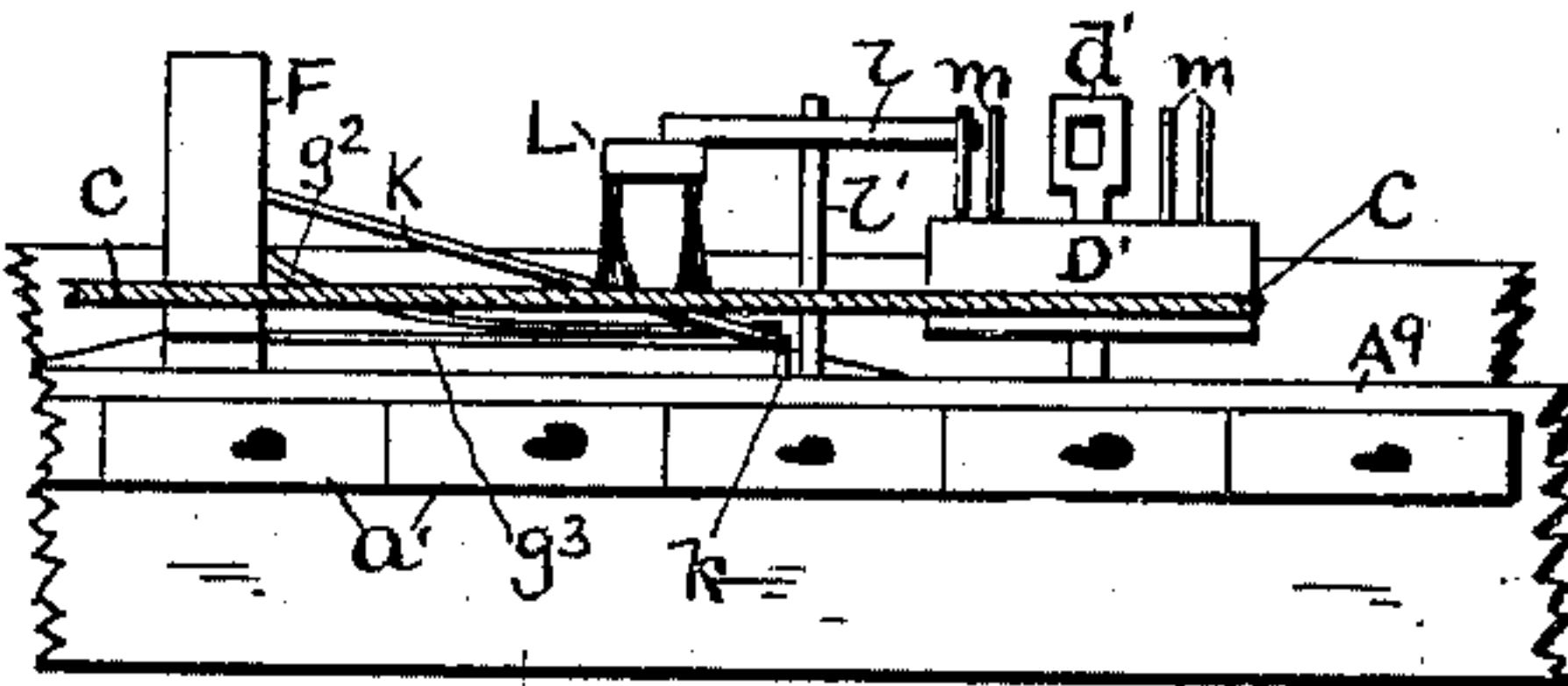


FIG. 2.

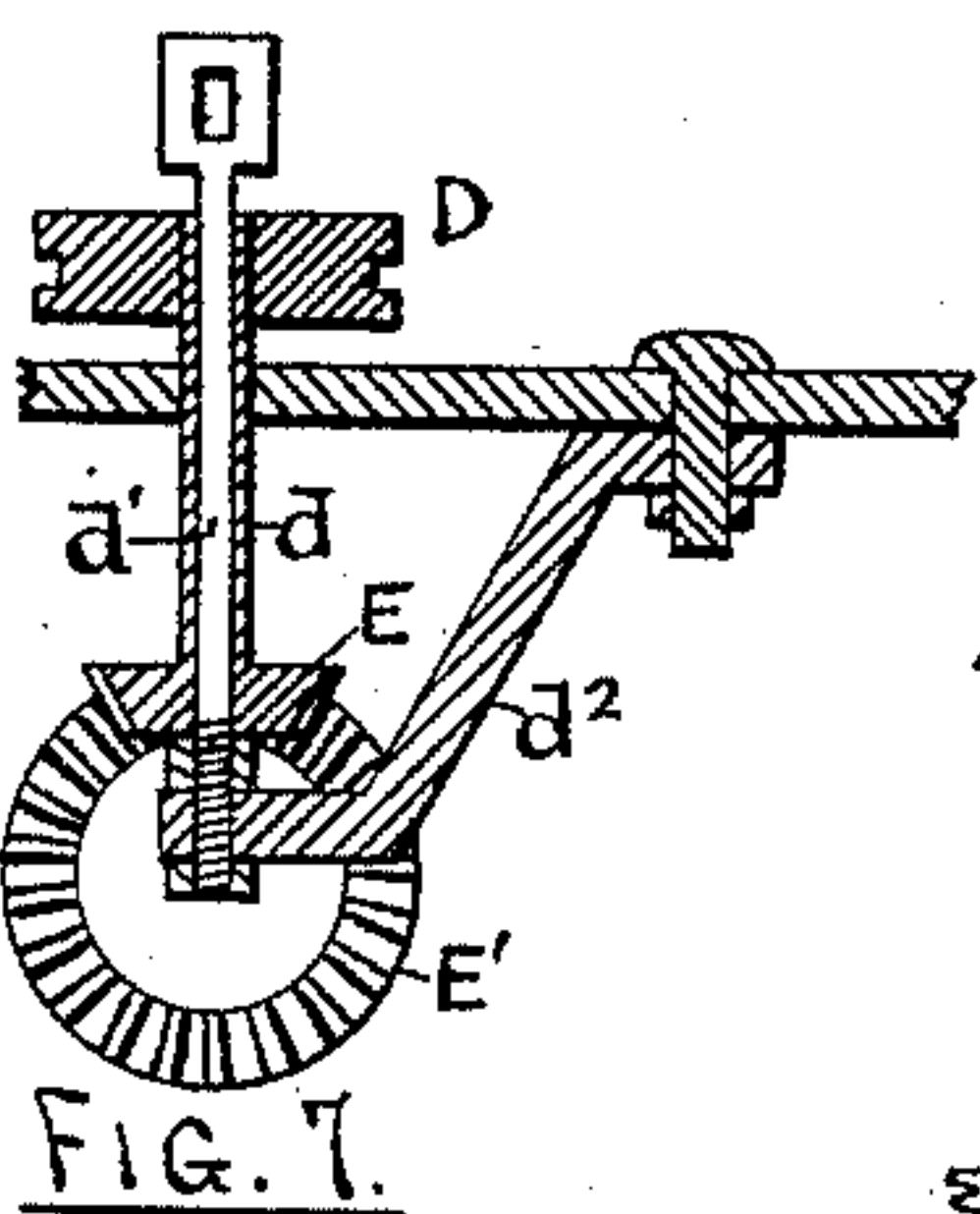
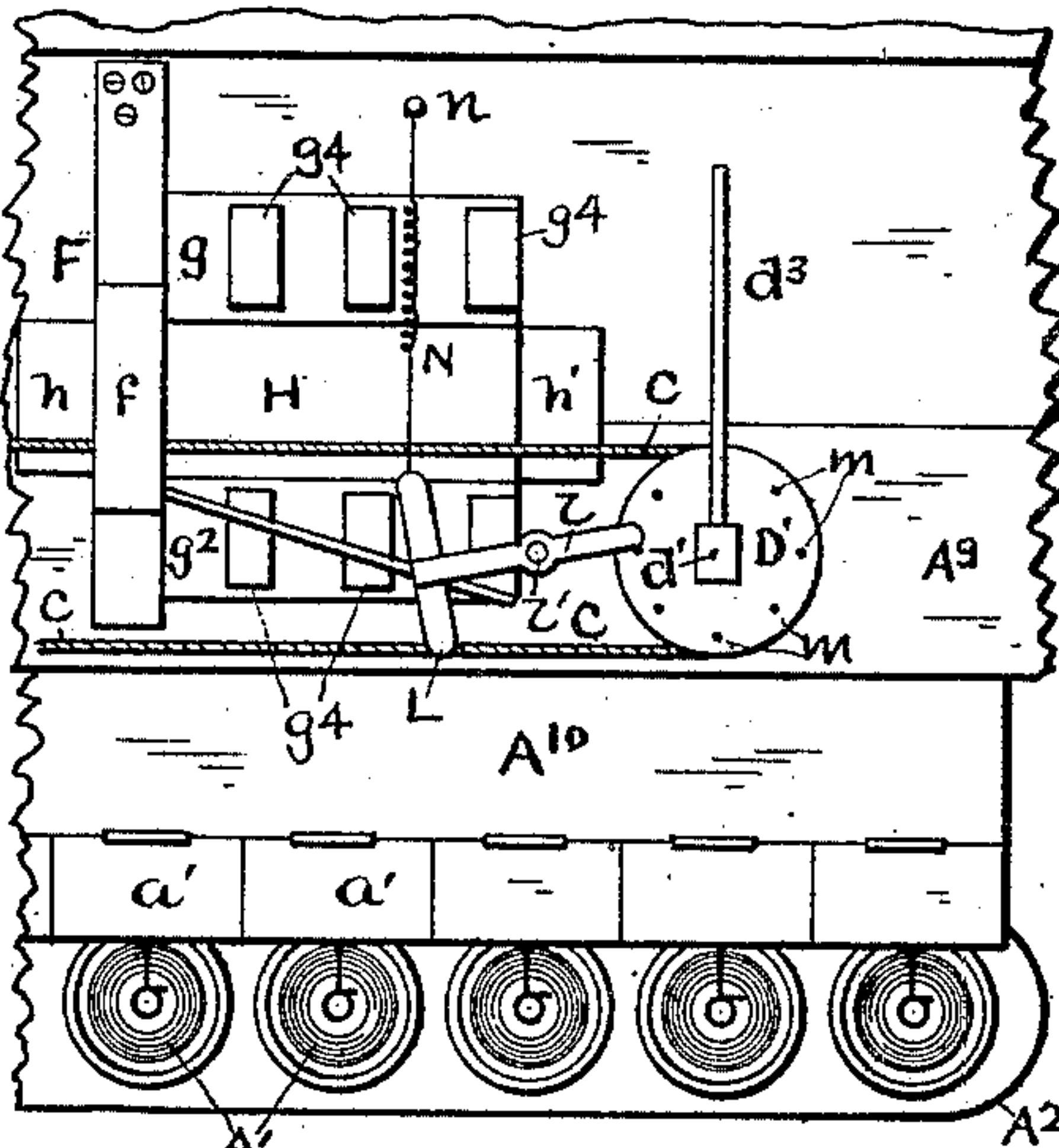
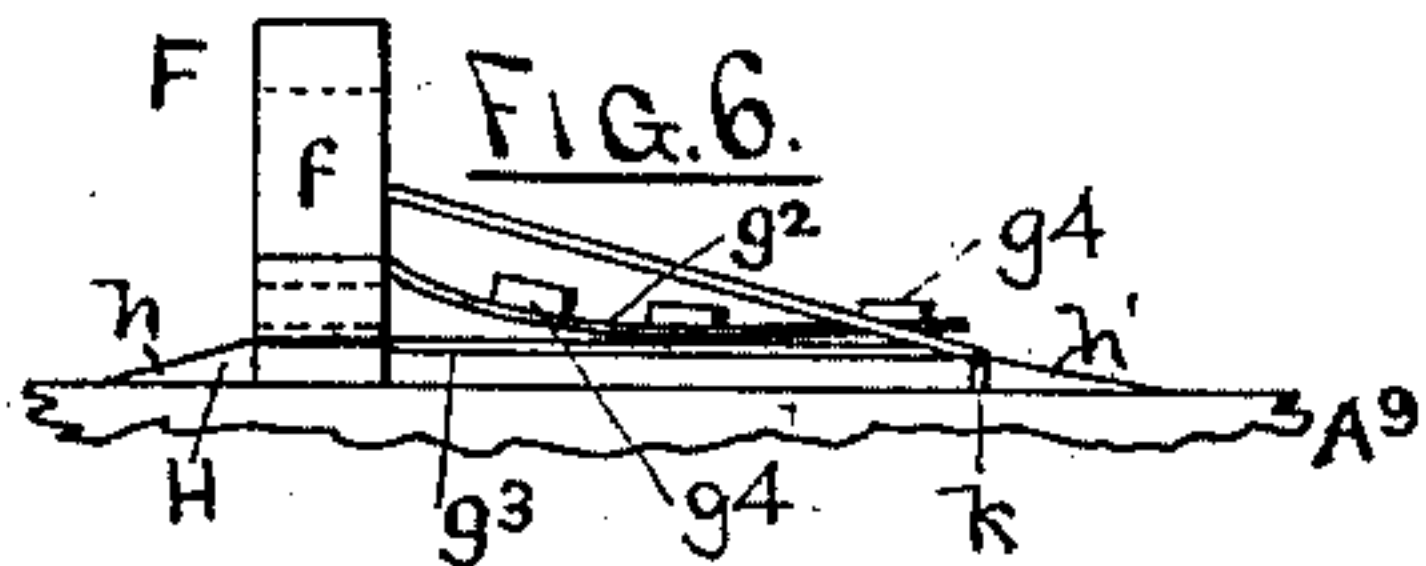


FIG. 6.



WITNESSES.

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CLEARER FOR REMOVING WASTE, &c., FROM THE TOP OF SPINNING-FRAMES, &c.

SPECIFICATION forming part of Letters Patent No. 396,616, dated January 22, 1889.

Application filed July 5, 1884. Serial No. 136,813. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM E. SHARPLES, a citizen of the United States, residing at Fall River, in the county of Bristol and State of Massachusetts, have invented a new and useful Clearer for Removing the Waste, Flyings, Leaf, and Dirt from the Top of Ring-Spinning Frames, Twisting-Frames, Speeders, and Machines of Similar Construction, of which the following is a specification.

My invention consists in improved means, hereinafter described and claimed, for automatically and continuously removing the waste, flyings, leaf, and dirt from the top of ring-spinning frames, twisting-frames, speeders, and machines of similar character, thereby preventing the breaking down of ends and uneven yarn caused by pieces of waste catching on the yarn, as is common when the top of the frame is cleaned by a bunch of waste in the hand of the operative.

In the accompanying drawings, Figure 1 represents a front view of a portion of a ring-spinning frame having my device attached thereto. Fig. 2 shows a top view of the same with the delivery-rolls removed. Fig. 3 represents a side view of the cleaning-blocks. Fig. 4 shows the same in horizontal section. Fig. 5 represents an end view of the waste-retainer or means for removing the waste collected by the cleaning-blocks. Fig. 6 shows a side view of the waste-retainer. Fig. 7 represents in section, on a larger scale, the manner of mounting the pulleys around which runs the belt for carrying the cleaning-blocks.

The letter A designates the bolster-rail of an ordinary ring-spinning frame; a , the spindles; A' , the receiving-bobbins; A^2 , the ring-rail; a' , the hinged guide-wire blocks; A^3 , A^4 , the delivery-rolls, and A^5 the spools or bobbins from which the yarn is delivered.

The delivery-rolls A^3 A^4 are driven in a well-known manner through a train of gears, (shown at A^6 , Fig. 1,) and motion is given to this train by a gear, A^7 , which meshes with a gear, A^8 , this latter gear being driven from the "spindle-drum" (not shown in the drawings) of the frame in a well-known manner.

Referring to Figs. 1, 2, 3, and 4, B is the cleaning device, which may consist of a single block, but is shown as composed of a se-

ries of blocks, b , of wood or other suitable material, which are flexibly joined together by a leather or canvas strap, b' , secured to the backs of the blocks by cement, tacks, or in any preferred manner. An elastic cord, b^2 , Figs. 1 and 4, is preferably employed to retain the ends of the blocks in close contact when moving in a straight line and to steady the blocks when rounding the pulleys, hereinafter described, the said cord passing through holes in the blocks and being secured to the end blocks in any suitable manner, as by pegs p , driven into the holes therein so as to fasten the ends of the cord, as shown in Fig. 4. The blocks b are covered on the bottom with flannel, b^3 , and have projecting from their front and back sides bristles or brushes b^4 .

The cleaning device B is intended to be moved from one end of the machine to the other, and for this purpose it is attached to an endless belt or band, C, which is secured to the device in any suitable manner, as by staples b^5 , Figs. 3 and 4. The belt C passes around grooved pulleys D D', located near each end of the machine, as shown in Fig. 2. These pulleys may be mounted to revolve upon studs projecting upwardly from the roller-beam A^9 ; but each is preferably mounted, as shown in Fig. 7, upon a sleeve, d , which surrounds a stud, d' , screwed into a bracket, d^2 , at its lower end, and having at its upper end an eye to receive one end of the usual lever, d^3 , Fig. 2, which passes through a stirrup (not shown) in a well-known manner, for the purpose of weighting the top rolls, A^4 .

The sleeve d , which is attached to the pulley D, has a bevel-gear, E, Figs. 1 and 7, secured to its lower end; the said gear meshing with a gear, E' , on the shaft e , Fig. 1. At the opposite end of the shaft e another bevel-gear, e' , is secured, which meshes with a gear, e^2 , Figs. 1 and 2, located on the shaft e^3 . This shaft bears a worm-gear, e^4 , Fig. 2, which is engaged by a worm, e^5 , mounted upon a hub projecting from the gear A^8 . By means of these gears and worm the pulley D is rotated and the cleaning device B is made to travel from one end of the frame to the other, passing on one side of the center of the roller-beam A^9 when moving toward the left hand and upon the other side of the center of said

beam when moving in the opposite direction, as will be understood by an inspection of Fig. 2.

During the passage of the device B over the top of the frame the brushes b^4 and flannels b^3 gather the waste, flyings, dirt, &c., from the guide-wire board A^{10} , the blocks a' , the roller-beam A^9 , and the back board, A^{11} , between the said beam and the roving step A^{12} , and thereby automatically keep the top of the frame in a clean condition. Preferably the foremost block or prow of the cleaning device B is beveled or pointed, as shown in Figs. 2, 3, and 4, so that if it meet any of the guide-wire blocks a' which have been tipped back the said pointed block will turn down such guide-wire blocks, so that they will not prevent or impede the onward movement of the device.

In order that the waste, flyings, &c., collected by the brushes b^4 may be removed therefrom, the top of the frame is provided with one or more waste-retaining devices, F, Figs. 1, 2, 5, and 6. One of these devices is shown in Fig. 2 located near one end of the machine, and others may be located at intervals between the two pulleys D D', as will be readily understood. This waste-retaining device consists of a frame or yoke, f , having an opening, f' , Fig. 5, through which the blocks b can pass, and two side openings, f^2 , through which the bristles or brushes b^4 can pass. Secured to the yoke f , and extending from the openings f^2 , are four pieces of flannel or other suitable material, g g' and g^2 g^3 , in pairs, the upper ones, g g^2 , being preferably weighted with blocks or pieces g^4 , as shown in Figs. 2 and 6. Extending through the opening f' is a plate, H, having inclined ends h h' , so that as the device B passes through the device F toward the pulley D' it will be raised above the roller-beam A^9 and back board, A^{11} , and the brushes b^4 on the outside of the device B will pass between the flannels g g' and those on the inside of the device between the flannels g^2 g^3 . As the brushes pass between these flannels the latter remove the waste, &c., collected by the former and retain such waste until cleaned from time to time, as occasion may require.

It will be seen that when the device B has rounded the pulley D' and is moving toward the pulley D the brushes b^4 on the back or inner side of the device would be likely to disturb the flannels g^2 g^3 unless the flannels were sufficiently raised to allow the brushes to pass under them. This elevation of the flannel g^2 , and consequently of the flannel g^3 , is attained by means of a wire, K, Figs. 1, 2, 5, and 6, which is attached at one end to the yoke f and at the other end supports the outer end of the flannel g^3 at such a distance above the roller-beam (see Figs. 5 and 6) as to allow the brushes on the back side of the device B to pass under the flannel g^3 when moving away from the pulley D', the extreme end k of the wire K being bent down, as shown in Figs. 5 and 6, so as to rest upon the beam, and thereby make the wire stable. The pulleys

D D' are also preferably raised above the top of the machine, as shown in Figs. 1 and 7, so that the brushes on the back side of the device B shall not be bent or broken by contact therewith when rounding the pulleys.

In connection with the cleaning mechanism above described there are also preferably employed means for keeping the belt or band C clean. These means consist of a brush, L, Figs. 1 and 2, which is mounted on an arm, l , supported to oscillate in a horizontal plane upon a stud, l' . The brush L is swung in one direction by pins m , Figs. 1 and 2, on the pulley D', which pins come in contact with the outer end of the arm l as the pulley revolves, and in the other direction by a spring, N, attached at one end to the brush and at the other to a stud, n , Fig. 2.

It has heretofore been proposed to combine a reciprocating wiper with the roller-beam and carriage of a mule-spinning machine, said wiper being arranged to slide on a guide-rod affixed to the roller-beam and operated by the carriage through the intervention of an endless cord and other devices. Such construction forms no part of my invention, since the wiper device in my invention is secured directly to the endless band and moves with it throughout its course, and is arranged to pass in opposite directions along the top of the frame upon opposite sides of the central line of the roller-beam, whereby the whole of the roller-beam, the guide-wire board and its blocks, and the back board are cleaned, which results it would be impossible to accomplish with a device mounted to move upon a guide-rod.

What I claim, and desire to secure by Letters Patent, is—

1. The combination, with the roller-beam and back board of a ring-spinning frame, twisting-frame, speeder, or similar machine, of the cleaning device and an endless belt or band connected to said device for moving it along the top of the machine in the path of said band, revolving supports for the band, and means, substantially as described, for driving said band from the working parts of the machine, the said cleaning device being thereby caused to pass over the top of the frame upon one side of the central line of the roller-beam when moving in one direction and upon the other side of said line when moving in the opposite direction, cleaning the whole of the roller-beam, the back board, and other parts immediately adjoining the roller-beam, substantially as described.

2. The combination, with a ring-spinning frame, twisting-frame, speeder, or similar machine, of the cleaning device B, operating on both sides of the central line of the roller-beam, an endless belt or band, C, connected to said device for continuously moving it along the top of the machine, revolving supports for said belt, means, substantially as described, for driving said belt from the working parts of the machine, and one or more

waste-retainers, substantially as described, located in the path of movement of the device B and adapted, as described, to remove therefrom the waste, &c., collected by the device, substantially as set forth.

3. The combination, with the roller-beam, back board, and guide-wire board of a ring-spinning-frame, twisting-frame, speeder, or similar machine, of an endless belt or band, revolving supports for such band, located upon the roller-beam, a cleaning device directly attached to said band and having upon its bottom and projecting laterally from the sides thereof upon both sides of said band means, substantially as described, for cleaning the top of the frame, and means, substantially as described, for driving said band from the working parts of the machine, the said cleaning device being thereby caused to pass over the top of the frame upon one side of the central line of the roller-beam when moving in one direction and upon the other side of said line when moving in the opposite direction, cleaning the whole of the roller-beam, the back board, and other parts immediately adjoining the roller-beam, substantially as described.

4. The combination, in a ring-spinning frame, twisting-frame, speeder, or similar machine having hinged guide-wire blocks, of the cleaning device B, pointed or beveled at its forward end to turn down any of such guide-wire blocks that may have been left up after doffing, and having its bottom and two lateral sides provided with means, substantially as described, for cleaning the top of the frame, an endless band or belt, C, attached directly to said device for continuously moving it along the top of the machine, revolving supports for the band, located on the roller-beam of the machine, means, substantially as described, for driving said band from the working parts of the machine, and one or more waste-retainers, substantially as described, located in the path of movement of the cleaning device B, and adapted, as described, to remove the waste, &c., collected upon the bottom and sides of the cleaning device, said cleaning device being made to project upon both sides of the band C, so that by one round trip the

whole of the roller-beam is cleaned, substantially as described.

5. The combination, with a ring-spinning frame, twisting-frame, speeder, or similar machine, of the cleaning device B and endless belt C, connected to said device for continuously moving it along the top of the machine, revolving supports for said belt, means, substantially as described, for driving said belt from the working parts of the machine, one or more waste-retainers, substantially as described, located in the path of movement of the device B, and adapted, as described, to remove therefrom the waste, &c., collected by the device, and means, substantially as described, for cleaning the belt C, substantially as set forth.

6. The combination, with a ring-spinning frame, twisting-frame, speeder, or similar machine, of the cleaning device B, composed of a series of blocks flexibly jointed together and provided with brushes b^4 , means, substantially as described, for giving said device a continuous movement along the top of the machine, one or more waste-retainers, F, located in the path of movement of the device B, and provided with flannels, as described, for removing the waste, &c., from the brushes b^4 , and having the flannels on the inner side raised above the top of the machine, as described, and the plate H, located transversely between said flannels, substantially as set forth.

7. The cleaning device B, composed of a series of blocks flexibly connected together, with the foremost block beveled or pointed, and said blocks provided with flannels b^3 and brushes b^4 , substantially as and for the purposes specified.

8. The waste-retainer F, having openings f' and f^2 , flannels g g' g^2 g^3 , extending from the openings f^2 , the upper flannels being weighted, as described, the plate H, and the wire K, for supporting the outer end of the flannel g^3 , substantially as and for the purposes specified.

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Witnesses:

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GEO. T. WILEY.