(No Model.)

F. VAN FLEET.

TYPE CLEANING BRUSH FOR TYPE WRITING MACHINES.

No. 528,215. Patented Oct. 30, 1894.

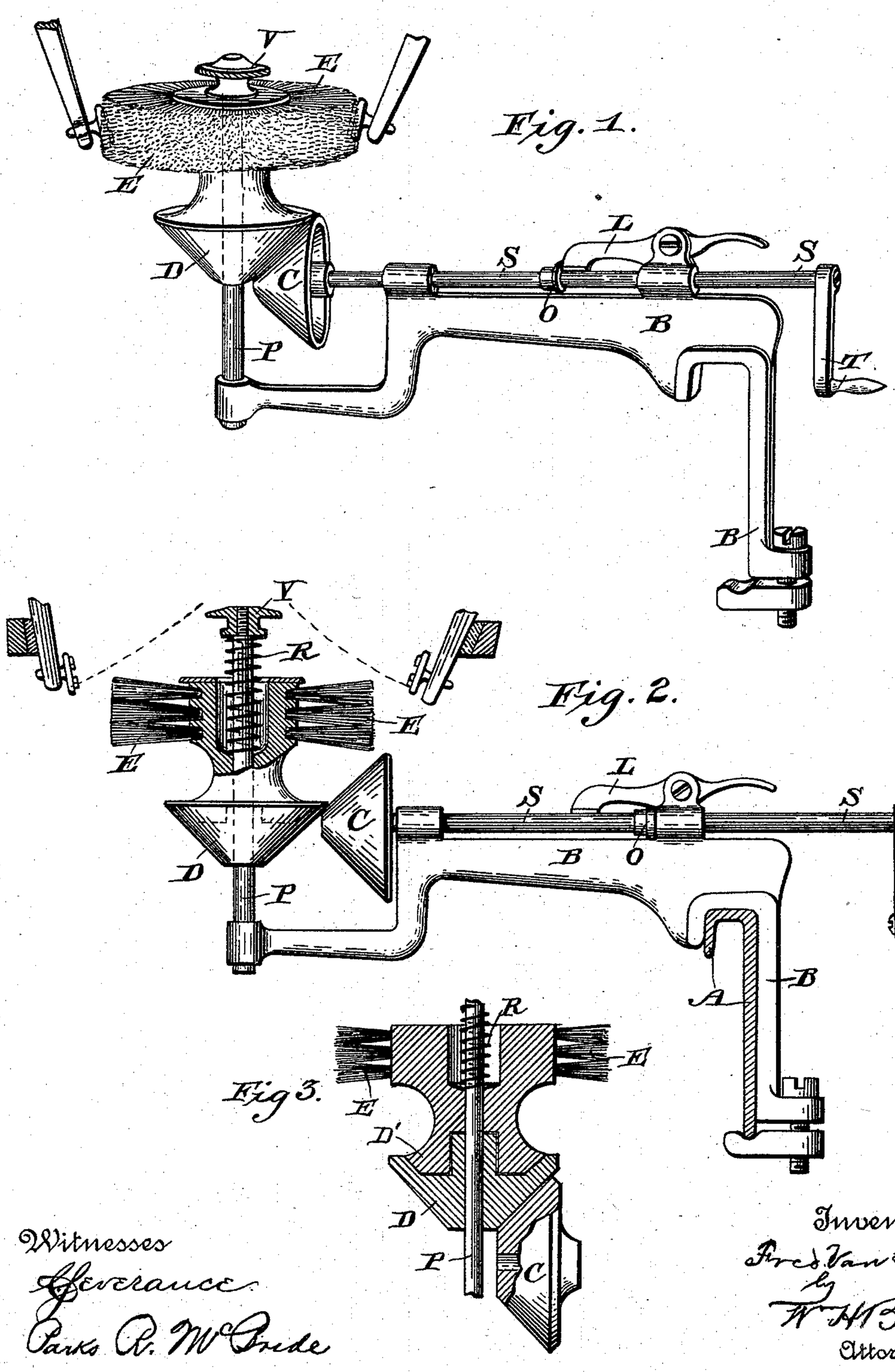

Fig. 1.

Fig. 2.

Fig 3.

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TYPE-CLEANING BRUSH FOR TYPE-WRITING MACHINES.

SPECIFICATION forming part of Letters Patent No. 528,215, dated October 30, 1894.

Application filed July 26, 1893. Serial No. 481,496. (No model.)

To all whom it may concern:

Be it known that I, FRED VAN FLEET, a citizen of the United States, residing at Williamsport, in the county of Lycoming and State of Pennsylvania, have invented certain new and useful Improvements in Type-Cleaning Brushes for Type-Writing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention is an improvement on my Patent No. 469,179, and like the said patent employs a brush, or cleaner, smaller than the type-opening, and operated within said type-opening, to clean one, or several type at a time without affecting the remainder of the type.

The chief objects of the present invention are to drive the said brush, or cleaner entirely by friction, instead of by positive connections, and to provide for throwing it instantly into or out of the operative position. To attain these ends I employ the construction and combination of parts substantially hereinafter set forth and claimed.

In the accompanying drawings, Figure 1 represents a perspective view of the device in its operative position. Fig. 2 represents a similar view in its inoperative position, the brush-holder being partly broken away; and Fig. 3 represents a detail view of the brush-holder, the driving conical gear and the driven conical gear, the former being sectioned to show the friction surfaces within.

In the drawings, A designates the machine frame to which the device is clamped as shown.

B designates a bracket clamped to the machine frame A. In the bracket B are bearings for a horizontal shaft S, to the outer end of which a crank T is attached. On the inner end of the shaft S is attached a friction cone C. On the inner end of the bracket B, and at right-angles to the shaft S, is an upright pin P. Revolving loosely on the pin P, and free to rise and fall thereon, is a second friction cone D. Above this cone D, and carried or driven thereby, is a brush or cleaner E, which is a wheel brush with straight sides, and smaller in diameter than the type-opening, so that it clears all the type when raised up into the type-opening. The said brush may, if desired, be attached to the cone D; but, as shown by dotted lines in Figs. 2 and 3, it is provided with a conical downward extension D′, which fits into a corresponding recess in the top of the said cone and is driven by friction with the latter, both the said cone and the said brush with its conical extension being sleeved on the same rod, pin or stem P. This brush, or cleaner has a recess hollowed out of its upper surface, within which recess is a spiral spring R. On the top of the pin P is a thumb nut V which serves to hold the parts together, and also as a bearing for the spring R.

The shaft S is free to move horizontally in its bearings, and when in its inner position, is held by a gravity latch L bearing against a collar O on the shaft S.

The operation of the device is as follows: The brush being in its lowest position (see Fig. 1), the type all strike over the cleaner, and the operation of the typewriter is not interfered with. When it is desired to clean one or more of the type, the shaft S is pushed to the left until the gravity latch L catches the collar O and locks it in that position. The movement of the shaft S causes the friction cone C to slide under the friction cone D, and as they act as inclined planes, the effect is to raise the cone D and with it the brush or cleaner E vertically on the pin P, until the brush reaches its operative position within the type-opening. The crank T is then turned, and the friction between the cones caused by the compression of the spring R causes the brush or cleaner E to revolve around the pin P, while by pressing the proper keys the type are forced against the periphery of the revolving brush, which cleans them thoroughly without the least tendency to strain the type bars and throw the machine out of alignment. When the type are cleaned, a pressure of the right thumb on the gravity catch L releases the shaft S, and the elasticity of the spring R throws the brush E down into its normal or inoperative position below the type opening, the shaft S being at the

same time forced to the right by the action of the friction cones C and D. The typewriter is now in condition to be used in the usual way, as the brush or cleaner is entirely out of the way of the type-bars.

The advantages of this device are:

First. The brush or cleaner being driven entirely by friction, instead of by positive connections, and the frictional force being adjusted by the tension of the spiral spring R, and the thumb-nut V, just sufficient power can be imparted to the brush or cleaner to accomplish the cleaning of one or a number of the type at one time, but in case the type should catch into the bristles of the brush, or the type-bar keys should be pressed so hard that the friction of the type on the brush becomes so great that there is danger of twisting and straining the type-bars and throwing the machine out of alignment, the brush will in that case cease to revolve and no harm will result, although the crank may be continuously turned. Upon releasing the pressure upon the type-bar keys, the brush immediately commences to revolve again, and the cleaning may be proceeded with as before. This frictional driving is the gist of the invention, and acts as a safety-device to entirely prevent injury to the type-bars of the machine, thus furnishing a device that is safe and practical.

Second. The driving cones acting on each other as inclined planes serve to throw the brush almost instantly into and out of the operative position by a single movement of the hand, a great advantage, as practically no time is lost in operating the device.

Third. The friction cones work together with great smoothness and an almost entire absence of noise, and the whole device can be made cheaper, adjusted quicker, and worked more rapidly without injury to the machine, than where gears or other positive means of driving the brush are employed.

In practice I sometimes find it preferable to make the brush block and driven cone D in one piece and of some hard wood, as maple, beech, &c., but usually I prefer the construction illustrated more particularly in Fig. 2, having the driving cone separate from the brush block or conical downward extension D′ and made of metal or any suitable material. A similar construction may be employed for the driving cone C.

When the brush is made separate from the driven cone as above stated, the friction, in case the brush is held by resistance, will be between the contiguous faces of the parts D D′, and the driving cones will not slip over each other unless the said faces should in some way be locked together. The action will be similar if such a friction device be interposed between the driving cone and its operating mechanism as above suggested.

It is obvious that the idea of a friction driven type-cleaner may be varied greatly. I do not, therefore, confine myself to the details of the device herein shown and described, but

I claim broadly as my invention—

1. In a type-writing machine, a movable type-cleaner in combination with movable parts having inclined faces and connecting and actuating devices whereby the forcing of one of the said faces against the other will place the said cleaner in operative position, and the withdrawal of the said face will permit the said cleaner to leave the said position substantially as set forth.

2. In a type-writing machine, a movable type-cleaner, in combination with friction cones whereby it is driven and connecting and actuating devices, the said cones and cleaner being movable in the direction of their axes, and the pressure of one of the said cones against the other serving to place the said cleaner in operative position substantially as set forth.

3. In a type-writing machine, a movable type-cleaner having a brush-block or downward extension, in combination with mechanism, including a longitudinally sliding shaft separate from the said brush or block extension, for moving it into and out of position and operating it and means for locking it in operative position at will substantially for the purpose set forth.

4. In a typewriting machine, the combination of a type cleaner and its support with mechanism, including a longitudinally sliding shaft, for operating it and moving it into and out of operative position, and a positive catch engaging the said shaft at will to lock it against withdrawal substantially as set forth.

5. In a type-writing machine a type-cleaner adapted to be raised into the type-opening, in combination with friction cones for thus raising and for rotating it, connecting and supporting devices and a catch for retaining the said cleaner in its operative position substantially as set forth.

6. In a type-writing machine the combination of a type-cleaner adapted to slide up and down on its support with a spring arranged to move the said cleaner out of the type opening and means for moving the said cleaner into the said opening substantially as set forth.

7. In a type-writing machine, the combination of a type-cleaner movable up and down on its support, with a spring bearing on the said cleaner to depress it, and a longitudinally movable shaft, and gearing for raising the said brush into the type opening, and rotating it substantially as set forth.

8. In a type-writing machine the combination of a movable type-cleaner with a spring arranged to force it down out of the type-opening, bevel friction cones for rotating the said type-cleaner and supports and actuating devices which allow the pressure of one cone against the other to lift the brush into the said opening substantially as set forth.

9. In a type-writing machine, the combination of the vertical shaft having spring-bearing at its upper end, in combination with a type cleaner and friction cone which slide on the said shaft, a spring arranged between the said bearing and the said type-cleaner to depress the latter and the said friction cone, a second friction cone in contact with the former and movable toward or from it, and a shaft for rotating the second friction cone substantially as set forth.

10. In a type-writing machine, the combination of a type-cleaner which is movable into and out of the type-opening, a friction cone which is movable with it, and a spring arranged to force them out of the said opening, of a second friction cone in contact with the former one, a shaft on which it is fixed, and bearings for the said shaft which allow the said shaft and the said second friction cone to move toward and from the axis of the brush substantially as set forth.

11. In a type-writing machine, the combination of an endwise movable shaft and bearings therefor with a catch mounted in one of the said bearings and engaging the said shaft to hold it in a certain position of longitudinal adjustment for operation, a type-cleaning brush movable into and out of the type-opening, and gearing interposed between the said shaft and the said brush whereby the latter is rotated and raised into operative position, the said catch retaining it there substantially as set forth.

12. A type-cleaner for typewriters provided with driving frictional surfaces in addition to the main driving gears substantially as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

FRED VAN FLEET.

Witnesses:

OTHO N. MILLER,

F. DIETMEIER.