(No Model.)

E. C. & A. J. SMITH.

MECHANICAL ERASER.

No. 590,598. Patented Sept. 28, 1897.

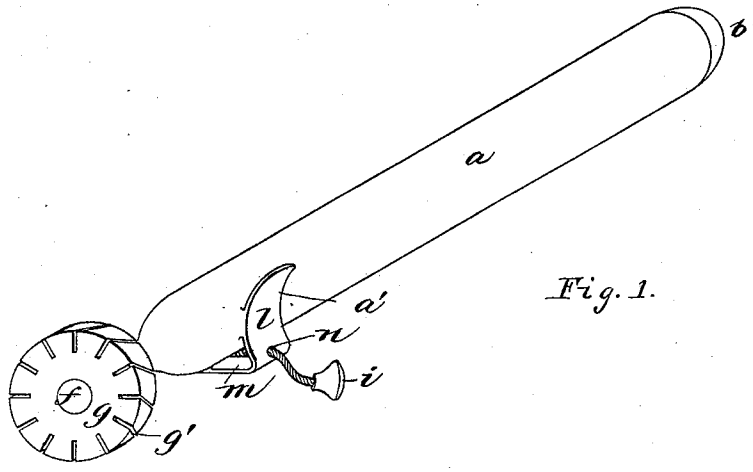

Fig. 1.

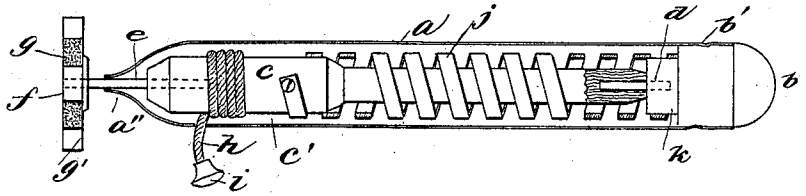

Fig. 2.

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UNITED STATES PATENT OFFICE.

EDGAR C. SMITH AND ALFRED J. SMITH, OF WEST SUPERIOR, WISCONSIN.

MECHANICAL ERASER.

SPECIFICATION forming part of Letters Patent No. 590,598, dated September 28, 1897.

Application filed January 12, 1897. Serial No. 619,007. (No model.)

To all whom it may concern:

Be it known that we, EDGAR C. SMITH and ALFRED J. SMITH, citizens of the United States, residing at West Superior, in the county of Douglas and State of Wisconsin, have invented certain new and useful Improvements in Mechanical Erasers; and we do hereby declare the following to be a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same.

Our invention relates to improvements in mechanical erasers adapted particularly for draftsmen's use; and the objects of the invention are to provide and produce a simple, cheap, and effective device for the same purpose.

In order that our invention may be better understood, attention is directed to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of our improved mechanical eraser; and Fig. 2, a longitudinal sectional view, partly in elevation, of the same.

In both of the views corresponding parts are represented by the same letters of reference.

a represents a cylindrical tube or case made of sheet metal and drawn out at its forward end at *a''* to constitute a contracted or conical portion, the extremity of which constitutes a bearing for the shaft, to be described.

Inserted in the rear end of the case is a plug *b*, which may be made of wood and which is held in position by indenting the case at *b'* in the well-known way. It is obvious, however, that this plug may be secured by screw-threads, pins, or retaining its position entirely by friction.

Mounted within the case *a* is a spindle *c*, which may be made of wood and which is preferably provided with a large cylindrical forward portion *c'*, as shown. The rear end of this spindle is inserted in a short shaft *d*, bearing in the end of the plug *b*, and at the forward end of the spindle is rigidly secured a shaft *e*, which projects out through the forward end of the case, as shown. These shafts *d* and *e* may be made of stiff wire.

At the forward end of the shaft *e* is rigidly secured a disk *f*, made of wood or metal. Mounted upon this disk and rigidly secured to the same is the eraser *g*. This eraser is of the cylindrical shape shown and is provided on its periphery with numerous oblique slots *g'*.

In order to operate the eraser *g*, we employ a cord *h*, secured to the enlarged cylindrical portion *c'* of the spindle *c* and normally wound up thereon, as shown. To the end of this cord is secured a finger-piece *i*, by which it may be grasped and operated.

In order to return the spindle to its original position when it has been rotated by the cord *h*, we make use of a spiral spring *j*, which surrounds the spindle, being secured at one end to the portion *c'* thereof and at the other end to the reduced portion *k* of the plug *b*.

Secured to the case *a* near its forward end is a thumb-piece *l*, so located and of such a shape that the ball of the thumb of an operator will engage therewith when the case *a* is grasped in the operator's right hand. This will materially facilitate the handling of the device and enable the eraser *g* to be firmly held to its work. The thumb-piece *l* preferably extends underneath the case *a* to form a flat portion *m*, by reason of which the device will be prevented from rolling on an inclined surface when not in use. The thumb-piece *l* and extension *m* are made in one piece and may be conveniently soldered in place. For the purpose of convenience we extend the cord *h* through an opening *n* in the thumb-piece *l*, by which it will be guided.

From the above description the operation of our device will be readily understood. In use the case is grasped in the right hand of the operator, with the ball of the thumb in contact with the thumb-piece *l*, so that the same may be firmly grasped. The finger-piece *i* is then taken in the left hand and the cord *h* pulled out, so as to rotate the spindle *c* and thereby communicate to the eraser *g* a rotary motion. By then moving the left hand toward the case the spring *j* returns the parts to their former position and reverses the rotation of the eraser. In this way a rotary motion first in one direction and then in the other will be communicated to the eraser and the operation of erasing will be quickly and neatly performed.

We find in practice that by giving to the eraser a rotary motion first in one direction

and then in the other the work of erasing is performed in a better way, because the eraser does not tend to flatten down and smooth the surface, as would be the case if it were rotated continuously in one direction, but which tends to pick up the nap of the paper without affecting its character or appearance.

In the operation of erasing we also find that the provision of slots g' in the eraser tends to better facilitate the work, since thereby we obtain a series of engaging edges which successively come into contact with the paper and perform erasing functions. This takes place both on the forward and backward movements of the eraser.

Having now described our invention, what we claim as new therein, and desire to secure by Letters Patent, is as follows:

1. As an improved article of manufacture, a mechanical eraser comprising a casing a, a spindle c therein, a slotted rotary eraser g outside of the casing and connected to said spindle, and means for rotating said spindle first in one direction and then in the other, substantially as set forth.

2. As an improved article of manufacture, a mechanical eraser comprising a casing a, a spindle c therein, a rotary eraser g outside of the casing and connected to said spindle, a cord for rotating the spindle in one direction, and a spring for rotating the spindle in the other direction, substantially as set forth.

3. As an improved article of manufacture, a mechanical eraser comprising a casing a, a spindle c therein, a rotary eraser g outside of the casing but connected to said spindle, a cord h wound around said spindle for rotating the same in one direction, a spiral spring j surrounding the spindle, for rotating the same in the other direction, and a thumb-piece l on the casing, substantially as set forth.

4. As a new article of manufacture, an improved mechanical eraser comprising a casing a, a spindle c therein, a rotary eraser g outside of the casing but connected to said spindle, a cord h wound around said spindle for rotating the same in one direction, a spiral spring j surrounding the spindle, for rotating the same in the other direction, a thumb-piece l an extension m on the casing, substantially as set forth.

5. As a new article of manufacture, an eraser, cylindrical in form and provided with diametrical slots therein, substantially as set forth.

6. As a new article of manufacture, an eraser, cylindrical in form and provided with inclined diametrical slots therein, substantially as set forth.

This specification signed and witnessed this 3d day of December, 1896.

EDGAR C. SMITH.
ALFRED J. SMITH.

Witnesses:
FRANK HAYES,
J. W. OSBORNE.