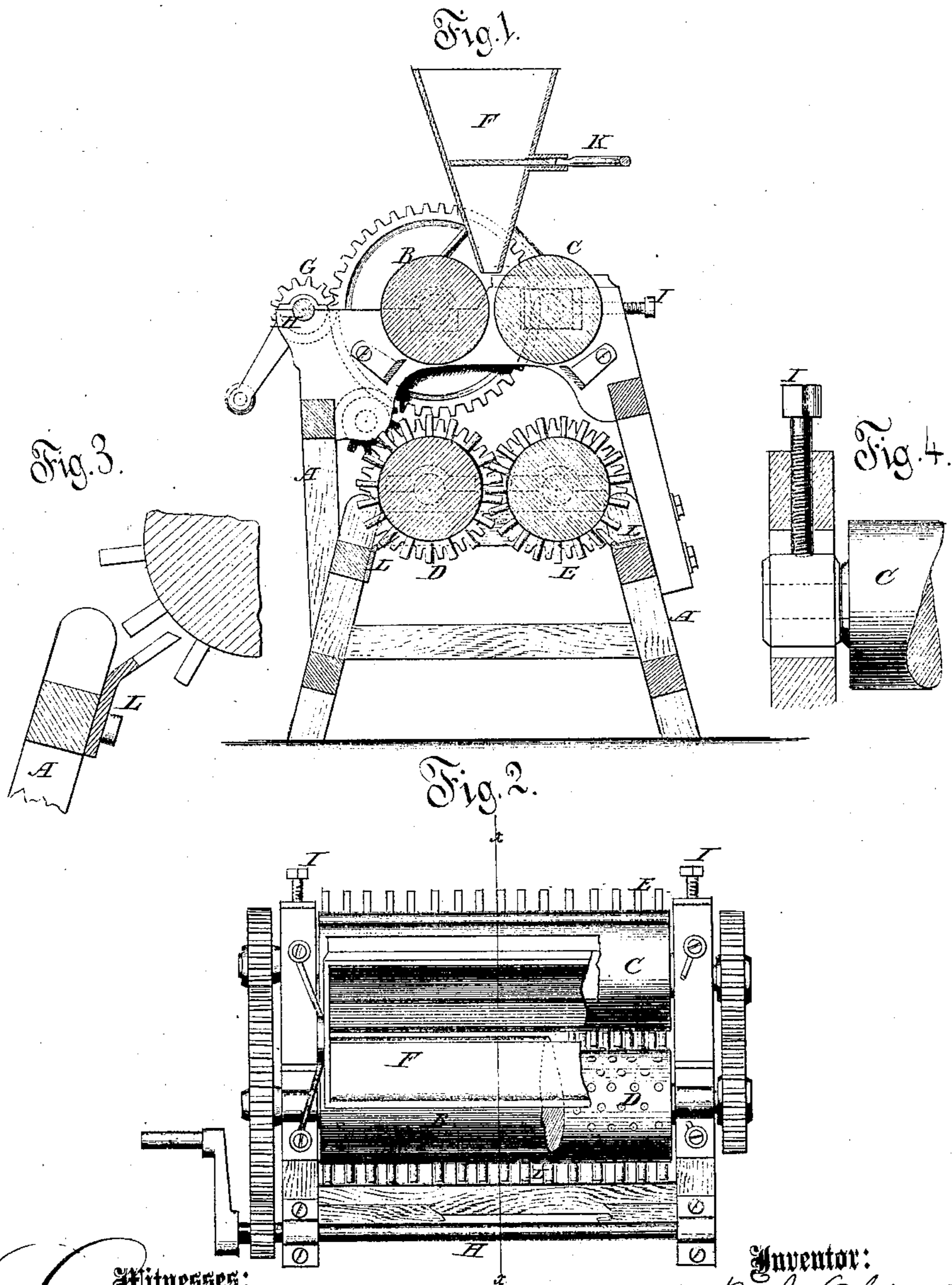


*F. A. Oliver,*

*Pressing Powder.*

*No. 101,032.*

*Patented Mar. 22, 1870.*



Witnesses:

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# United States Patent Office.

PAUL A. OLIVER, OF NEW YORK, N. Y.

Letters Patent No. 101,032, dated March 22, 1870.

## IMPROVED MACHINE FOR PRESSING AND GRAINING POWDER.

The Schedule referred to in these Letters Patent and making part of the same

To whom it may concern:

Be it known that I, PAUL A. OLIVER, of the city, county and State of New York, have invented a new and useful Improvement in Machine for Pressing and Graining Powder; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same, reference being had to the accompanying drawings forming part of this specification.

This invention relates to a new and useful machine for facilitating the manufacture of gun and blasting-powder; and consists in a new and improved method of pressing the material into sheets and in cutting the sheets into grains, as hereinafter more fully described.

In the accompanying drawing—

Figure 1 is a vertical section of the machine, on the line *x x* of fig. 2

Figure 2 is a top or plan view.

Figure 3 is a detail view, showing a section of one of the graining-cylinders and of the stationary comb for cleaning the graining-teeth.

Figure 4 is a detailed view, showing the method of adjusting one of the pressing-rollers and thereby varying the thickness of the sheets or cakes before graining.

Similar letters of reference indicate corresponding parts.

A represents the frame-work of the machine, which may be made of either wood or metal.

B and C are the pressing-cylinders.

D and E are the graining-cylinders.

F is the hopper.

G is the driving-pinion on the shaft H.

The pressing-cylinders B C and the graining-cylinders D E are so operated by means of a system of gearing-wheels from the pinion G, or by means of belts or otherwise, that the upper surfaces of each pair turn toward each other; consequently they are self-feeding.

The cylinders are revolved on suitable journals supported by the frame, to the ends of which journals the gear-wheels are attached, which operate as before mentioned. The pressing-rollers B C are plain cylinders, of the proper length and diameter, and of any material suitable for the purpose.

I I are adjusting-screws in the upper part of the frame, by means of which the pressing-cylinder C is adjusted to the other cylinder, B. By this means the sheet or cake of powder is pressed to the desired thickness. The pressure which may thus be applied

is limited only by the strength of the material of which the cylinders and frame are composed.

I do not confine myself to one pair of rollers for pressing the powder. More may be used, placed under the first in succession.

The graining-cylinders are placed directly beneath the pressing-cylinders, so that they receive the sheet and operate upon it by means of teeth in each cylinder, which teeth engage with or mesh into each other, and cut or break the sheet into grains of the desired size.

Various pairs of these cylinders may be employed, separately or in combination, to produce grains of the desired size.

I do not confine myself to this particular method of graining. Any other device suitable for the purpose may be employed, either in connection with or separate from the pressing-cylinders.

The powder is delivered from the graining-cylinders onto sieves or screens for properly assorting the grains.

By the mode at present pursued, hydrostatic presses are employed to press the powder into cakes. These cakes are broken into pieces, and finally the pieces are broken into grains, which is a very slow and tedious process, requiring expensive machinery. By my improvement this is all done at one operation and without handling.

The powder or mixture is placed in the hopper, the slide K is drawn back, and as the cylinders revolve they press the powder into sheets of proper thickness, which are broken up by the graining-cylinders to the desired fineness. The spaces between the graining-cylinders are cleaned by means of the teeth of the stationary combs L L, which engage with the teeth of the cylinders D E, as shown in fig. 1, and also in fig. 3.

Having thus described my invention,

I claim as new and desire to secure by Letters Patent—

1. The use of cylinders or rollers for pressing gun or blasting-powder, substantially as described.

2. The combination of the rollers or cylinders B C and D E in a machine, substantially as and for the purposes herein shown and described.

PAUL A. OLIVER.

Witnesses:

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