

J. H. LAWLES.

MACHINE FOR GRINDING PEARL, IVORY, &c.

No. 427,477.

Patented May 6, 1890.

Fig. 1.

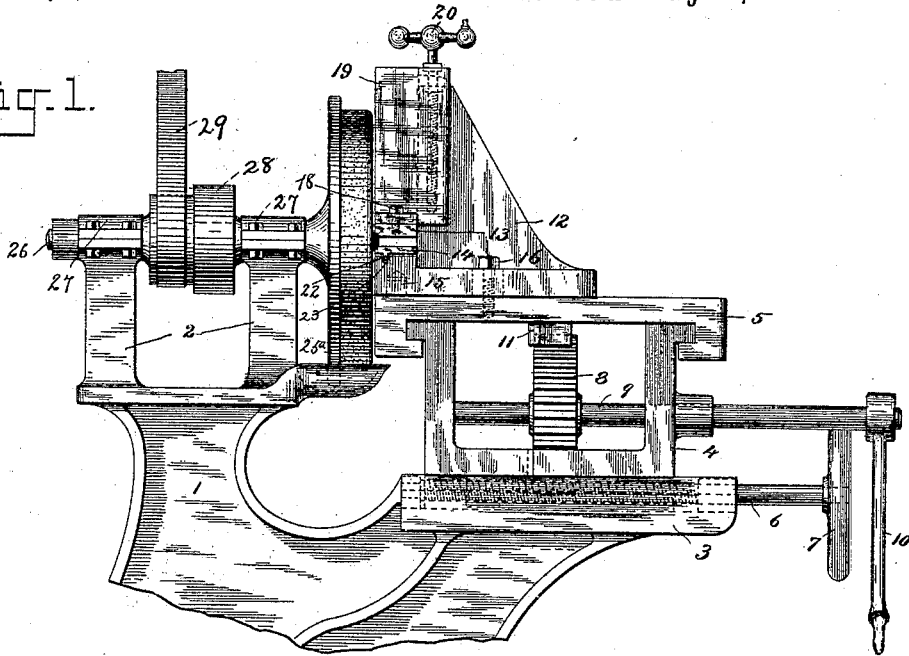
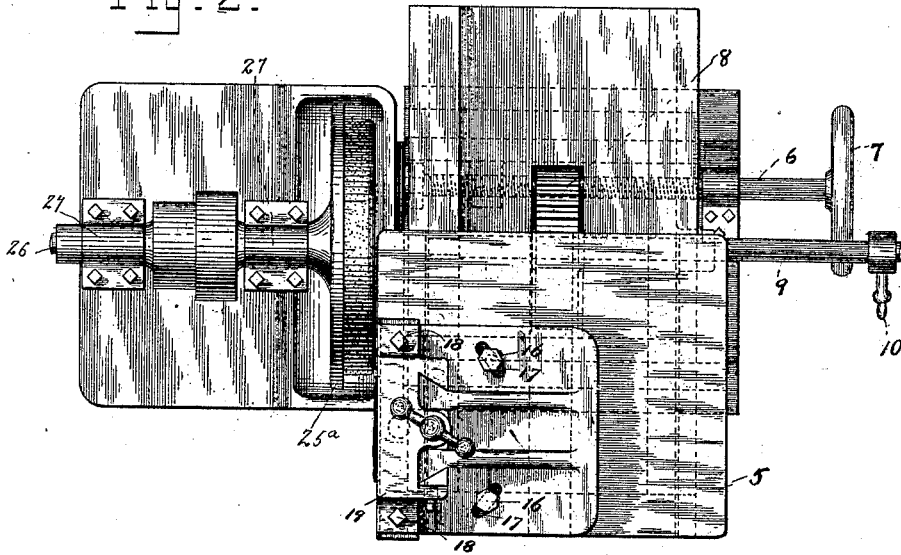


Fig. 2.



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Fig. 3.

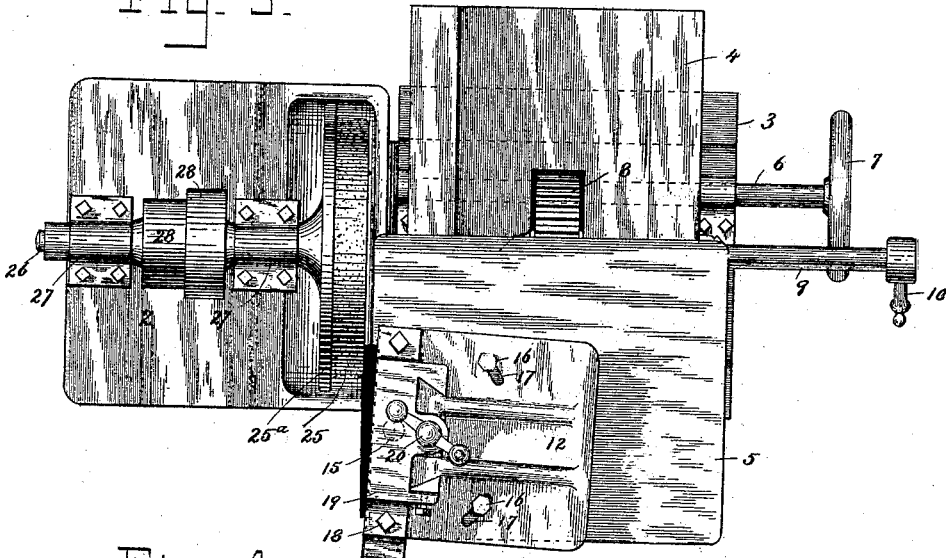


Fig. 4.

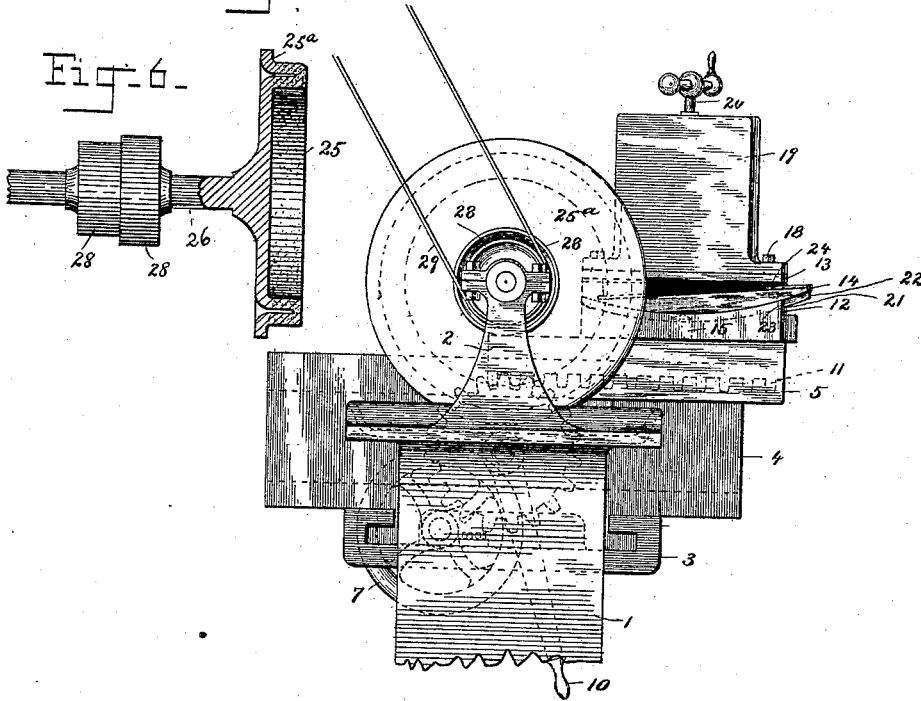


Fig. 6.

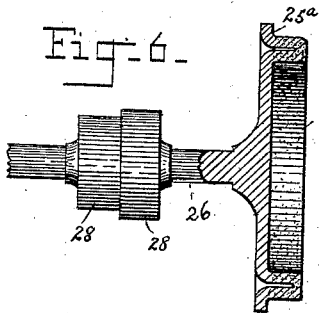
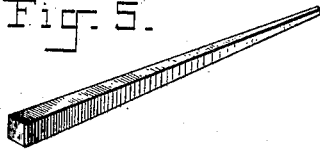


Fig. 5.



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# UNITED STATES PATENT OFFICE.

JOSEPH H. LAWLES, OF BROOKLYN, NEW YORK.

## MACHINE FOR GRINDING PEARL, IVORY, &c.

SPECIFICATION forming part of Letters Patent No. 427,477, dated May 6, 1890.

Application filed July 23, 1888. Serial No. 280,732. (No model.)

### *To all whom it may concern:*

Be it known that I, JOSEPH H. LAWLES, a citizen of the United States, residing at Brooklyn, county of Kings, and State of New York, have invented certain new and useful Improvements in Machines for Grinding Pearl, Ivory, &c., of which the following is a specification.

This invention has for its object the providing of a mechanical means of working mother-of-pearl into blanks for knife-handles, pen-handles, &c.

Hitherto this work has generally been performed by skilled workmen imported into this country for the purpose. The process of forming these articles is simply to saw the rough shells into strips suitable for the purpose desired. These strips are then taken by the workmen and ground down on a grindstone to the requisite thickness, which is determined by the eye. Consequently the blanks will differ more or less.

My improvement on this method, and in any machines for this purpose that I am aware of, I will now proceed to describe with reference to the accompanying drawings.

Figure 1 is a front elevation of my machine. Fig. 2 is a plan view. Fig. 3 is a plan view showing the blank-carrier at an angle for irregular or pyramidal blanks. Fig. 4 is an end view of Fig. 3. Fig. 5 is a view showing irregular form of blank for pen-holder. Fig. 6 represents a vertical section of the grinding-wheel.

The construction of this machine is similar to a slide-lathe, and consists of a frame 1, supporting the head 2 of the machine, and the slide 3, upon which the carriages 4 and 5 move. The position of carriage 4 upon the slide is controlled by the threaded rod 6, which, passing through a threaded lug on carriage 4, is operated by hand-wheel 7. The carriage 5 upon the carriage 4 is moved at right angles by the toothed wheel 8 upon the rod 9, operated by lever 10, engaging with the toothed rack 11 upon the under side of the carriage 5. Still another carriage, or rather work-holder 12 upon the carriage 5, carries the work in jaws 13 and 14, and is capable of being swung upon pivot 15, being guided and locked in its proper place by bolts 16 in slots 17. The

jaws 13 and 14 are both removable and may be replaced by jaws of larger or smaller sizes, as required. The upper jaw 13 is bolted at 18, as shown, to the vertical slide 19 upon the carriage 12 and is operated by the screw 20. The lower jaw 14 automatically adjusts itself to the angle of the irregular piece of work placed therein and clamps it against the upper jaw 13 by wedging, as shown in Fig. 4. The result is accomplished by forming a segmental concave seat 21 in the carriage 12 below the jaw 13, and having the lower edge of the jaw of a corresponding convex shape to fit therein, a sidewise movement being prevented by a tongue 22 in the channel 23. The jaws are cut, as at 24, on the corner to hold the work more securely.

By means of the aforementioned lever 10, rod 9, and gear 8, connected with the carriage 5 by rack 11, said carriage 5 and all thereon moves horizontally across the face of an emery-wheel 25, bolted or otherwise secured to a face-plate 25<sup>a</sup> on the shaft 26, journaled at 27 on the head 2. Said shaft is rotated by pulleys 28 and belt 29. This emery-wheel is preferably made hollow, merely forming a ring, as shown in dotted lines in Fig. 4, as well as in vertical section in Fig. 6, and the work is run across one side only, thereby saving time and material, as if the emery-wheel were solid the work would have to pass all the way across to make it even. The central point of the wheel being least worn away would project the farthest.

The advantages of using this machine are obvious, as skilled labor may be done away with, and consequently expense, and the amount of work performed by the machine is many times greater than that done by a workman in a given time.

The tendency of the material being worked upon to be hollowed out by the convex shape of the grindstone is completely obviated by my present construction.

In grinding a blank down from the rough strip of shell it is necessary to reduce the thickness one-half or more. This has formerly taken considerable time and attention, whereas in my improvement a single movement across the face of the emery-wheel removes all surplus material and leaves the

blank of a uniform thickness, thus saving valuable time and material, as blanks are often ground too thick, requiring to be ground down afterward or too thin to be of any use.

5 Having thus described my invention, the following is what I claim as new therein and desire to secure by Letters Patent:

10 A machine for grinding pearl, ivory, &c., consisting of the lower carriage 4, adapted to move in one direction, and another carriage sliding in ways thereon and adapted to move at right angles to said lower carriage, with a third and upright carriage or work-holder pivotally supported on the last-named car-

riage, the said work-holder being provided 15 with a vertical sliding jaw and an automatically-adjustable clamping-jaw, in combination with a grinding-wheel arranged substantially as shown and described, and adapted to grind the work when the transversely-mov- 20 ing carriage is pushed forward and to operate so as to thrust the work farther into the jaws if there is any tendency for it to become loosened, substantially as set forth and described.

JOSEPH H. LAWLES.

Witnesses:

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