(Model.) 2 Sheets—Sheet 1.

M. M. RHODES.

Apparatus for Gaging and Assorting Disks of Varying Thickness.

No. 231,359. **Patented Aug. 17, 1880.**

Fig. 1

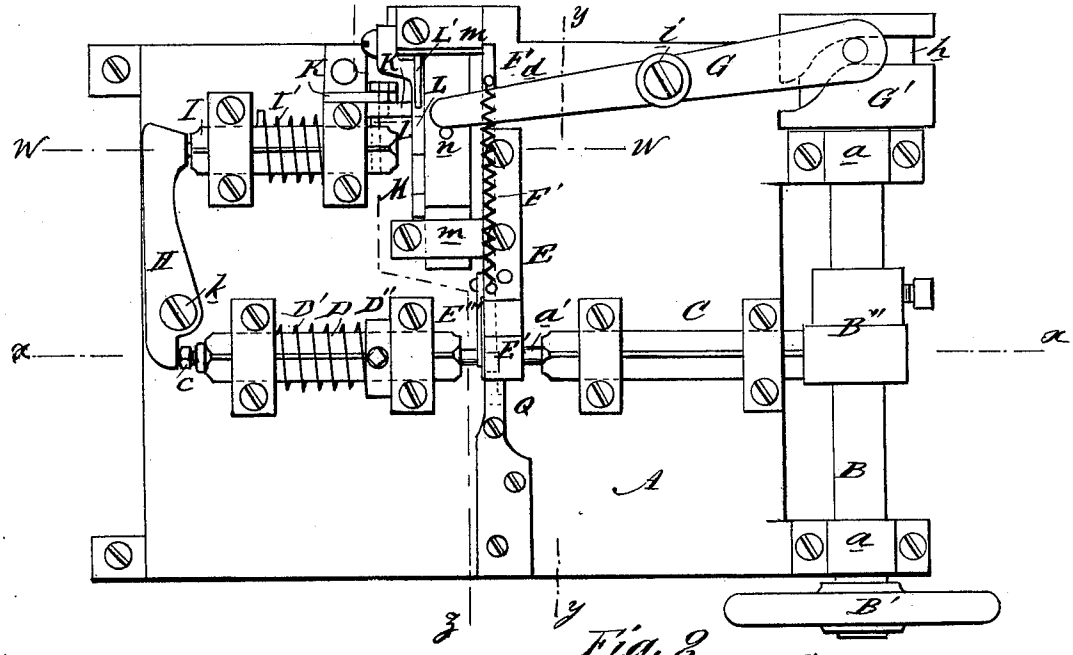
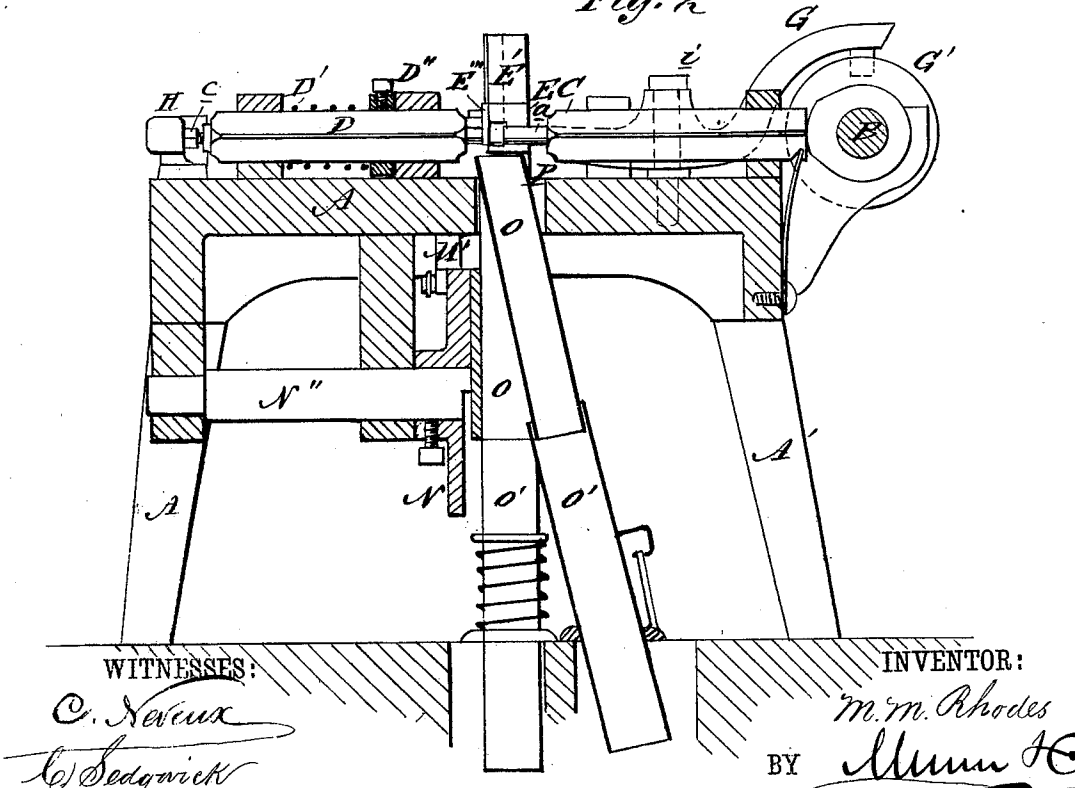


Fig. 2



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C. Sedgwick

INVENTOR:

M. M. Rhodes

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(Model.) 2 Sheets—Sheet 2.

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Fig. 3

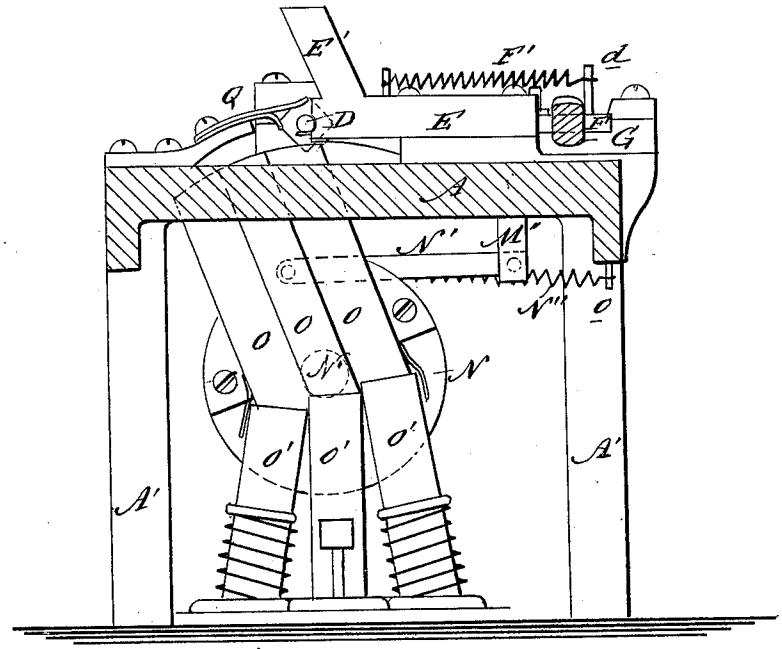


Fig. 4

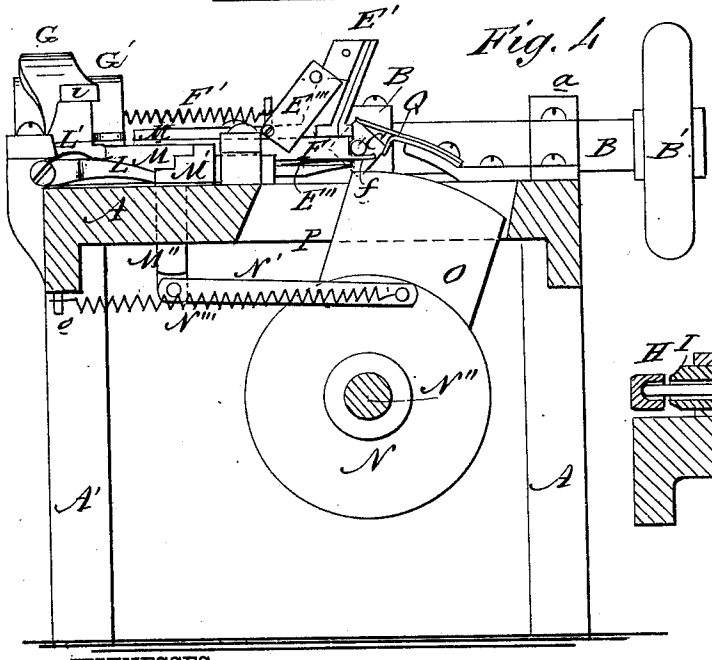
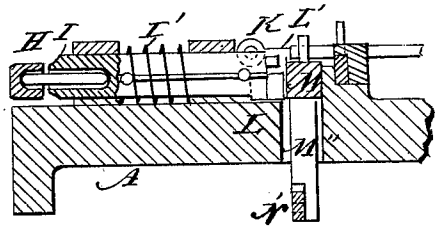


Fig. 5



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UNITED STATES PATENT OFFICE.

MARCUS M. RHODES, OF TAUNTON, MASSACHUSETTS.

APPARATUS FOR GAGING AND ASSORTING DISKS OF VARYING THICKNESS.

SPECIFICATION forming part of Letters Patent No. 231,359, dated August 17, 1880.

Application filed June 4, 1880. (Model.)

To all whom it may concern:

Be it known that I, MARCUS M. RHODES, of Taunton, in the county of Bristol and State of Massachusetts, have invented a new and Improved Method and Apparatus for Gaging and Assorting Disks of Varying Thickness, of which the following is a specification.

The object of this invention is to provide an automatic device for more accurately and economically gaging and assorting disks and planchets of varying thickness that are designed for coins, buttons, and other purposes.

The invention consists of an improved mechanism for feeding disks or planchets to gaging-calipers of a sliding spring caliper-bar, the range of whose every movement is determined by the thickness of the disk being gaged, of a group of receiving-tubes reciprocated beneath the calipers by novel mechanism, and of a method of transmitting motion from one caliper to another and its connections, all of which is hereinafter described.

Figure 1 is a plan of the device. Fig. 2 is a sectional side elevation on line *x x*, Fig. 1. Fig. 3 is a sectional end elevation on line *y y*, Fig. 1. Fig. 4 is a vertical sectional elevation on line *z z*, Fig. 1. Fig. 5 is a sectional elevation of a portion of the device on line *w w*, Fig. 1.

Similar letters of reference indicate corresponding parts.

In the drawings, A represents the bed-plate of the device, supported on legs A′. B is the driving-shaft, supported in suitable bearings *a a* and provided with driving-pulley B′. B″ is an eccentric secured on the shaft B, and designed to operate the caliper-bar C, that is set at right angles to said shaft B and slides in suitable supports which are fastened on the top of the bed-plate A, the inner end of said caliper-bar C being drawn down to a comparatively slender finger, as shown at *a′*.

Opposite the caliper-bar C, and on the same horizontal line therewith, is secured, in suitable supports on the bed-plate A, a corresponding sliding caliper-bar, D, provided with a spiral spring, D′, that is wound around it, and whose tension is regulated by the adjustable collar D″, said caliper-bars C D being set so that their inner and smaller ends are directly opposite each other and apart from each other enough to admit between them the disk or planchet to be gaged.

Fixed on the bed-plate A, at right angles to the caliper-bars C D, and with one end nearly in contact with the inner ends of said caliper-bars C D, is a rectangular box, E, from whose inner end the inclined box-slide E′ projects upward to receive and guide the disks or planchets that are to be gaged. Adjusted longitudinally in this box E is the shuttle F, provided with a projecting finger, *f*, that, when the device is in operation, operates to carry the disks or planchets forward between the caliper-bars. A spring, E″, in the bottom of the box E serves to keep said shuttle F always on a proper level for its work. The rear end of said shuttle F extends beyond the box E, and is provided with a vertical pin, *d*, and a spiral spring, F′, stretched between said pin *d* and the pin *g′* on the box E, serves to urge the said shuttle F forward after each backward movement.

E‴ represents a slide or cover closing the side opening in the box E at the point where the disks or planchets fall into the finger of the shuttle F, it being designed to open said cover E‴ for convenience of removing any planchets that may by chance become jammed at said point. This shuttle F is retracted by means of the cam-lever G, whose free end engages against the pin *d*, and whose other end engages in the eccentric groove *h* of the eccentric G′, which is keyed on the end of the driving-shaft B, said lever G being fulcrumed at *i* on the bed-plate A, as shown.

H is a lever fulcrumed at *k* on the bed-plate A, with its short arm in contact with the adjustable set-screw *c*, that is fixed in the end of the caliper-bar D, while the other arm of said lever H is drawn to a point that enters an end of the spring-actuated sliding bar I, which is secured in suitable supports on the face of the bed-plate A parallel with the caliper-bar D, said bar I being encircled by a spiral spring, I′, and having a stud or pin, *l*, projecting laterally from its inner end.

The pawl K, that moves in a vertical plane, is pivoted to a standard, K′, so that it rests upon the pin *l* of the bar I, and so that its

point shall engage beneath the pawl L, that is pivoted at right angles to the pawl K, and is held down by a spring, L′.

Parallel with the shuttle F is a slide-bar, M, provided with a vertical pin, *n*, movable in the direction of its length in the boxes *m*, and on one side of this bar M is fastened a series of steps, M′, corresponding in number with the number of thicknesses desired in the disks or planchets that are to be assorted.

M″ is a leg of the slide-bar M, projecting downward through a slot in the bed-plate A, and having its lower end connected with the face-plate N by means of the horizontal connecting-rod N′, said face-plate N being secured on the inner end of the rocking shaft N″, which is journaled in suitable boxes beneath the bed-plate A and at right angles to the connecting-rod N′. A spiral spring, N‴, is made fast at one end to the pivot that holds the rod N′ to the face-plate N, while its other end is secured on a pin, *o*, so that by its tension said spring N‴ shall assist in retracting the said rod N′ and plate N after each forward motion.

Upon the face of the plate N are arranged a series of tubes, O, having adjustable extensions O′, corresponding in number with the number of steps M′, or the number of grades into which the disks or planchets are to be assorted, and said tubes O have their mouths projected slightly up through the slot P in the bed-plate A, just beneath the opposing points of the caliper-bars C D, so that the disks or planchets released by said caliper-bars C D shall fall directly into whichever of the tubes O may then be in position to receive them. A double spring, Q, fixed on the bed-plate A, and extending over the mouths of the tubes O, operates to guide the disks or planchets that are gaged into their proper tubes. The machine being put in motion, the disks or planchets are fed by suitable mechanism into the inclined box-slide E′, at the bottom of which the first disk is engaged by the shuttle F, which is moved forward for this purpose by the spring F′. The said shuttle, with its finger *f*, carries the disk forward between the ends of the caliper-bars C D, which bars C D, being brought together by the action of the cam B′ against the outer end of the caliper-bar C, take said disk from the said shuttle, which latter then is made to recede by the engagement of the end of the cam-lever G against the pin *d*. The pressure of the cam B′ being continued against the bar C′, and the disk to be gaged being pressed between the ends of the two bars C D, motion is thereby imparted to the spring caliper-bar D, which, in turn, communicates motion through the set-screw *e* to the lever H. This motion is multiplied at the longer arm of the lever H, and is thereby imparted to the spring-actuated sliding bar I, which, in turn, by means of the pin *l*, engages the pawl K, and throws said pawl K forward and upward to engage and raise the pawl L to a height proportionate to the thickness of the disk being gaged. In the meantime the rotation of the driving-shaft B has imparted motion to the lever G, the longer end of which engages against the pin *n* of the slide-bar M and moves said bar longitudinally parallel with the shuttle-box E. Upon one side of this slide-bar M a series of steps, M′, are fastened, corresponding in number to the number of grades into which the disks are to be assorted.

The motion of the slide-bar M is transmitted, by means of the leg M″ and connecting-rod N′, to the face-plate N, and hence motion is given to the tubes O, that correspond in number with the number of steps M′, and consequently with the number of grades of disks required.

The pawl L having been raised to a height corresponding to the thickness of the disk being gaged, the lever G now receding, the bar M also recedes until one of the steps M′ is engaged by said pawl L, and by the same motion of said slide-bar M the face-plate N is moved so as to bring the tube O corresponding with the interposed step M′ immediately beneath the ends of the caliper-bars C D, where said bars are parted, so that the gaged disk or planchet drops into said tube O, and is conveyed to its proper receptacle through a tube, O′. The machine is now ready to repeat the operation.

It will be seen that motion is transmitted from the caliper-rod C to the caliper-rod D and its connections by the interposition of a disk or planchet between the said caliper-rods, and that the thickness of the disk being pressed by the caliper-rod C against the caliper-rod D determines and regulates the height to which the pawl L is raised, in order to engage the steps M′, and that thereby the tubes O are presented in proper order to receive and assort the disks.

The steps and tubes are not restricted to three in number, as herein shown, but may be of any number desired, provided there be the same number of one as of the other.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A machine for gaging and assorting disks of metal or other material, constructed substantially as herein shown and described, consisting of the box-slide E′, moving shuttle F, provided with finger *f*, lever G, caliper-bars C D, lever H, sliding bar I, pawls K L, sliding bar M, steps M′, connecting-rod N′, face-plate N, and tubes O, as set forth.

2. In a gaging and assorting machine, the slide-bar M, series of steps M′, connecting-rod N′, and face-plate N, provided with tubes O, substantially as herein shown and described.

3. In a gaging and assorting machine, the combination, with the shuttle F, slide-bar M, provided with steps M′, and face-plate N, provided with tubes O, of the lever G and cam or eccentric G′, substantially as herein shown and described, whereby said shuttle, bar, steps, plate, and tubes are operated, as set forth.

4. In a gaging and assorting machine, the shuttle F, provided with finger *f*, substantially as herein shown and described.

5. In a gaging and assorting machine, the combination, with the sliding caliper-bar C, of the sliding caliper-bar D, provided with spring D′ and adjustable set-screw *c*, substantially as herein shown and described.

6. The combination, with the caliper-bars C D, lever H, sliding bar I, and pawls K L, of the cam B″, substantially as herein shown and described, whereby said parts are moved, as set forth.

7. In a gaging and assorting machine, the method herein described of determining and regulating the height to which the pawl L is raised in order to engage the steps M′, and thereby present the tubes O in proper order to receive and assort the disks or planchets, which consists in interposing a disk or planchet between the caliper-bars of the machine, substantially as set forth.

MARCUS MORTON RHODES.

Witnesses:

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J. ALFRED MESSINGER.