

(No Model.)

2 Sheets—Sheet 1.

J. J. GRANT.
MEASURING MACHINE.

No. 533,456.

Patented Feb. 5, 1895.

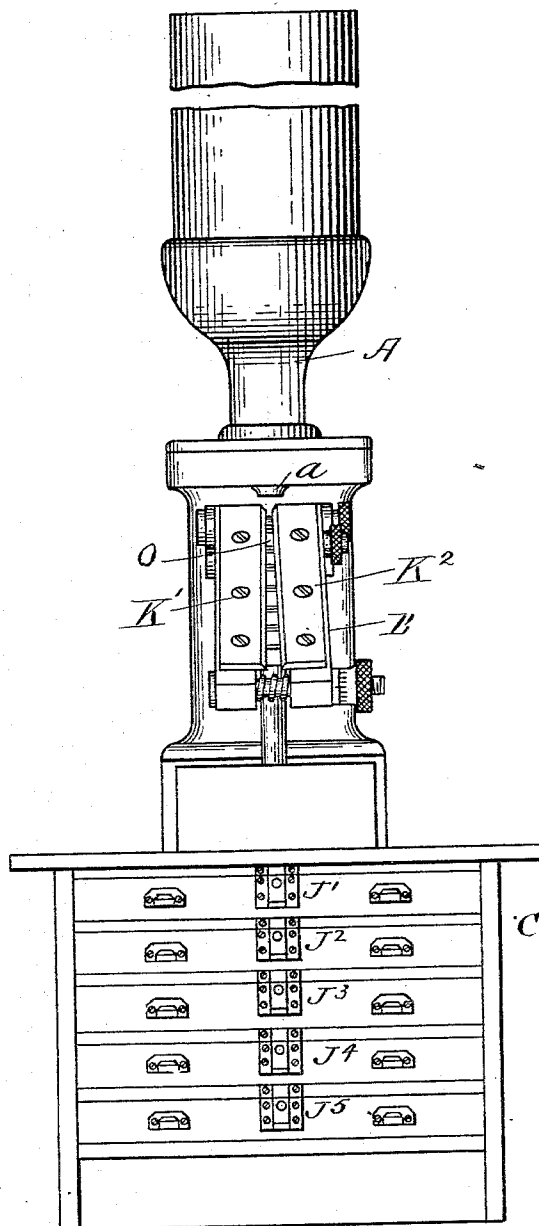


Fig. 1.

WITNESSES

E. H. Gilman
Geo. A. Holmes

INVENTOR

John J. Grant
By M. B. Bours
Atty.

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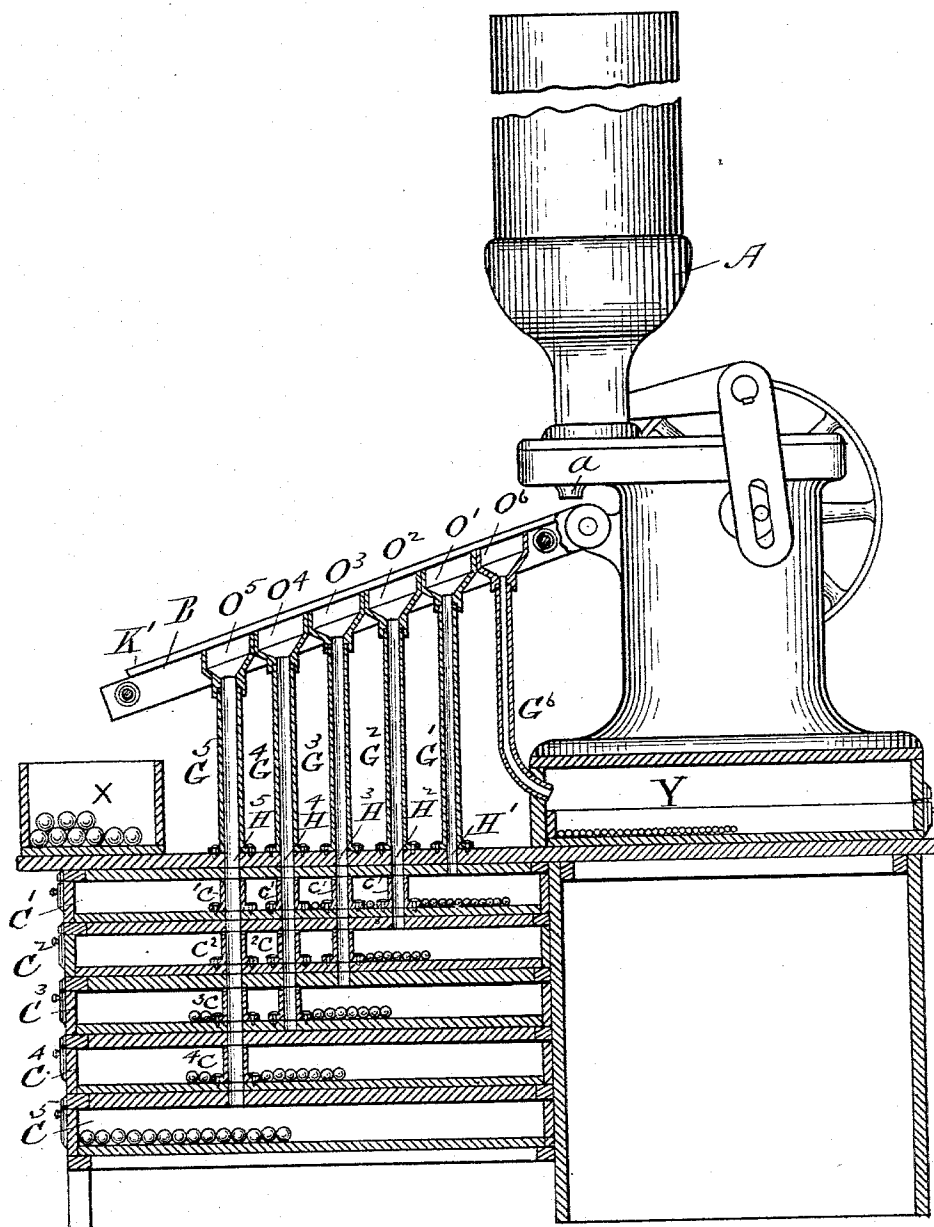


Fig. 2.

WITNESSES

E. H. Gilman
Geo. A. Sturges

INVENTOR

J. J. Grant
by *Wm. B. Brown*
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UNITED STATES PATENT OFFICE.

JOHN J. GRANT, OF CLEVELAND, OHIO, ASSIGNOR TO THE CLEVELAND MACHINE SCREW COMPANY, OF SAME PLACE.

MEASURING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 533,456, dated February 5, 1895.

Application filed May 9, 1894. Serial No. 510,567. (No model.)

To all whom it may concern:

Be it known that I, JOHN J. GRANT, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented an Improvement in Measuring or Assorting Machines, of which the following is a full specification.

My invention relates to devices for sorting accurately according to size, balls which have been previously turned and ground to true spheres, and consists in a cabinet provided with a series of drawers for holding the different sized balls, arranged so as to allow the balls to be passed through the different drawers until they reach their proper places.

The details of construction are hereinafter described in detail, reference being had to the accompanying drawings, in which—

Figure 1 is a front elevation of my improved cabinet showing the drawers provided with spring catches, and also showing the dropping and sorting machine. Fig. 2 is a vertical transverse section through my improved cabinet and sorting device, showing a side elevation of the dropping machine.

My cabinet, I preferably use in connection with a machine which automatically allows the balls to drop, one at a time, upon an inclined plane or measuring slide down which they roll over a longitudinal slot whose edges diverge gradually from top to bottom; the design being to have the balls drop through the slot as soon as they reach a place where its width corresponds to their diameter. Beneath this inclined slot is placed my improved cabinet which is provided with drawers which are connected with hoppers placed beneath the slot at different points along its length as hereinafter described in detail.

In the drawings, A represents the automatic dropping machine, and *a* is the delivery spout through which the balls drop on to the measuring slide, B, provided with the longitudinal slot O. This measuring slide B is made in two separate sections, having the slot O between them, down which the balls roll. The sides of this slot may be accurately separated any desired amount by micrometer screws at each end, and consequently the flare of the slot may be adjusted so that it is possible to know at what diameter the balls

will drop into each hopper O' O² O³, &c., beneath. These hoppers O' O² O³, &c., are arranged successively beneath the inclining slot O and are connected respectively by the pipes G' G² G³, &c., with the drawers C' C² C³, &c., of the cabinet C as follows: The pipes G' G² G³, &c., extend down to the top of the cabinet, to which they are secured, directly over the holes H' H² H³, &c., which extend down into the drawer C'.

In the drawer C' directly beneath the holes H⁵ H² H³ H⁴ are rigidly secured the short upright tubes *c' c'*, &c., which connect with openings in the bottom of the drawer C' into the drawer C² and thus form an unbroken passage through the drawer C'. In the same way drawer C² has three tubes through it; drawer C³, two tubes; and drawer C⁴, one tube; by which means, when the drawers are closed a continuous passage is formed from hopper O⁵ to drawer C⁵, from hopper O⁴ to drawer C⁴ and so on; while at the same time, it allows the drawers to be opened easily but makes it impossible for balls to pass from one drawer to another. The drawers are provided with spring catches J' J² J³, &c., Fig. 1 so that they may be held firmly closed when the cabinet is in operation, in order to bring the pipes and tubes properly in line and allow the balls free passages to the proper drawers.

Although I have shown five drawers in my cabinet, any number, more or less, may be used according to the number of different sizes of balls required. Should the diameter of the ball which rolls down the measuring slide be smaller than the variation allowed in merchantable balls, the slot is so arranged that it will drop into the first hopper O⁵ and be conducted thence by the pipe G⁶ to the receptacle Y. Should it be too large for use it will not drop through the slot until it reaches the receptacle X. Between these two sizes the ball will drop into one or the other of the various hoppers, and be conducted thence to its respective drawer.

In my cabinet the slot is so arranged that the balls nearest to the standard size required, will drop into the central hopper and drawer; the drawers above and below this central drawer containing balls of uniformly vary-

ing diameters respectively smaller and larger than the standard.

I claim—

1. In a measuring machine a measuring slide and a series of drawers, each drawer being connected to said slide by an independent tube or inlet, substantially as described.

2. In a measuring machine a common measuring slide having two or more outlets in combination with a cabinet having two or more drawers, each drawer having an inlet connecting with one of said outlets, substantially as described.

3. In a measuring machine a common measuring slide provided with a series of outlets connected with the top of a cabinet, in combination with a series of drawers, each drawer provided with an independent tube or inlet connecting directly by superimposed, independent tubes with each of said outlets, substantially as described.

4. In a measuring machine a cabinet provided with a series of drawers having independent, superimposed tubes, whereby continuous passages are formed through the drawers, and the articles to be measured are passed through the cabinet until they reach their proper drawer, substantially as described.

5. In a cabinet for measuring or assorting machines, a sorting slide in combination with a series of boxes or drawers, provided with tubes arranged as shown, whereby different sized balls may fall into their proper places, substantially as described.

In witness whereof I have hereunto set my hand.

JOHN J. GRANT.

Witnesses:

THOMAS H. WHITE,
A. W. SAWYER.