No. 717,726. PATENTED JAN. 6, 1903.

G. H. VINCKE.

MACHINE FOR SORTING CORKS.

APPLICATION FILED FEB. 11, 1902.

NO MODEL. 2 SHEETS—SHEET 1.

Fig. 2.

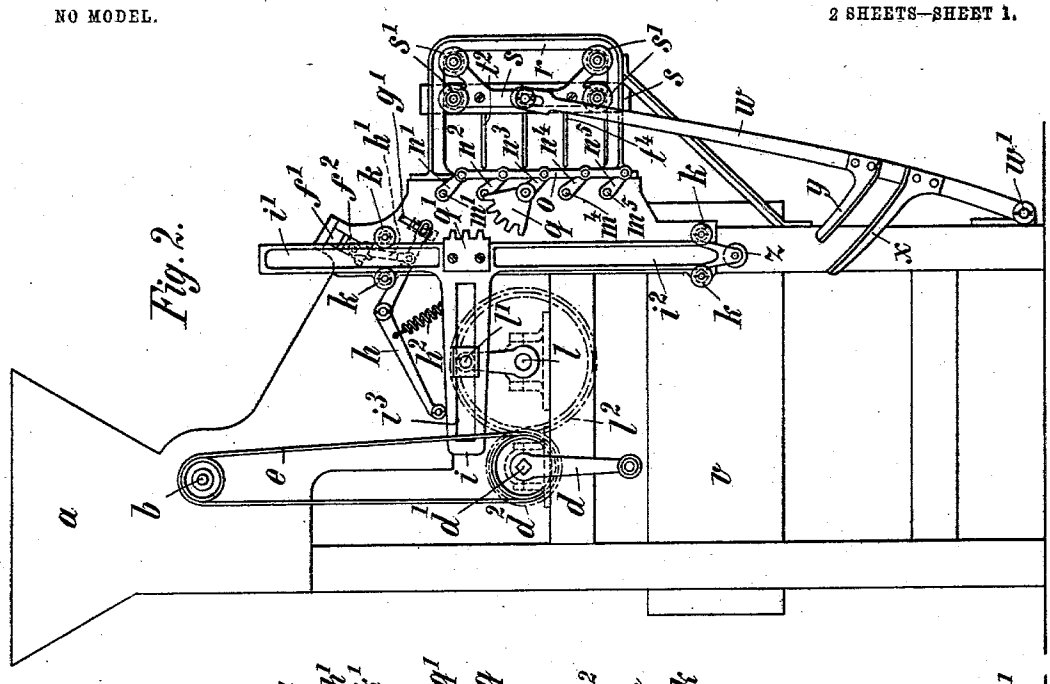
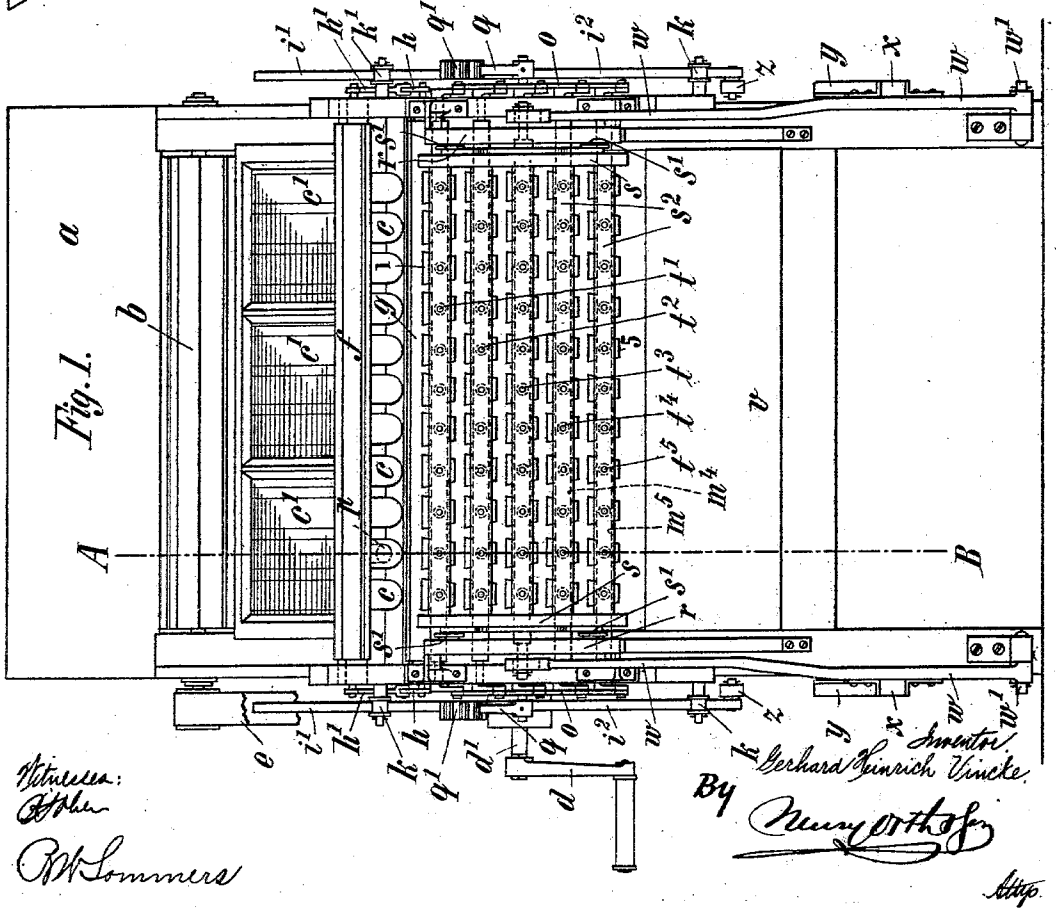


Fig. 1.



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NO MODEL. 2 SHEETS—SHEET 2.

Fig. 3.

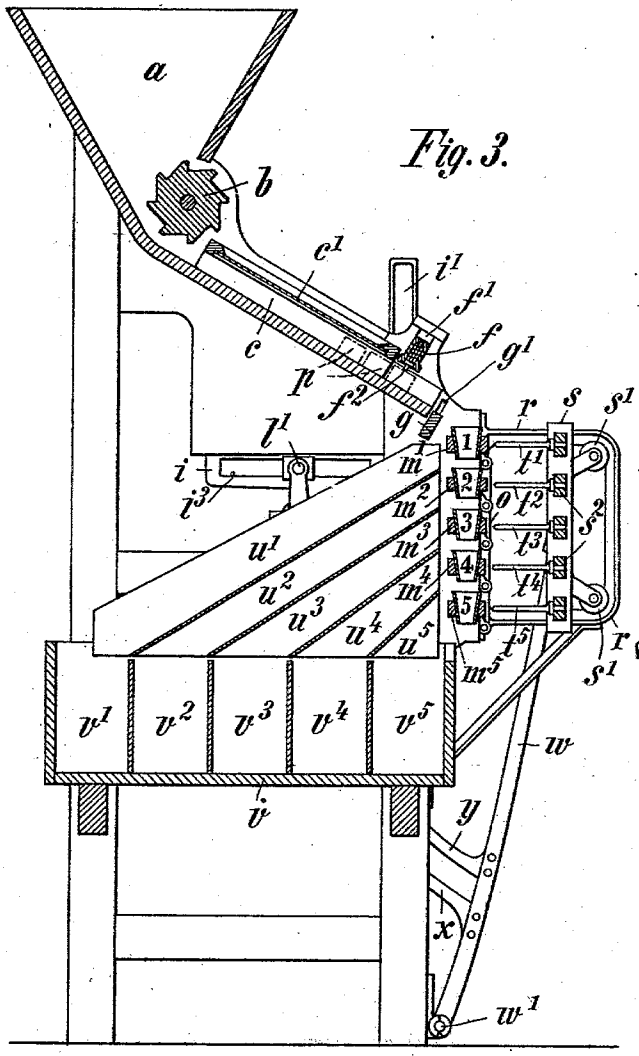
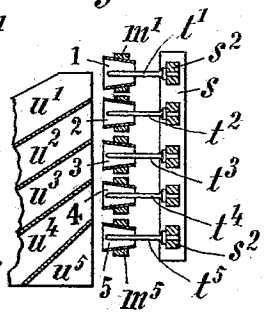


Fig. 4.



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GERHARD HEINRICH VINCKE, OF SAN FELIU DE GUIXOLS, SPAIN.

MACHINE FOR SORTING CORKS.

SPECIFICATION forming part of Letters Patent No. 717,726, dated January 6, 1903.

Application filed February 11, 1902. Serial No. 93,593. (No model.)

To all whom it may concern:

Be it known that I, GERHARD HEINRICH VINCKE, a subject of the German Emperor, and a resident of San Feliu de Guixols, Catalonia, in the Kingdom of Spain, have invented certain new and useful Improvements in Machines for Sorting Corks, of which the following is a specification.

According to this invention the corks are sorted by causing them to drop into a series of superposed cylindrical or tapering sockets or rings of gradually-reduced diameter downward or gradually-reduced outlet-openings, respectively, they being afterward ejected from any socket in which they are retained by tipping or tilting the socket so as to allow any appropriate cork-ejecting device to come into operation and deliver each particular size of cork into a separate receiver or collector, the ejectors being immediately withdrawn after each operation and the sockets righted again for catching the next cork.

The essential novel feature of this invention consists, therefore, in the sorting of corks by the aid of differently-calibered sockets or rings in contradistinction to the old method of either sorting the corks by hand by the aid of a perforated plate or mechanically between rotary rollers or roller pairs disposed with their peripheries so as to leave a gradual increasing distance between them, and thus cause each cork to fall from between the rollers at a place corresponding to the thickness of the cork. These types of machines are only effective for sorting machine-cut corks. Hand-cut corks always have a more or less unround and angular form and cannot be accurately sorted in an ordinary machine, and it is a frequent occurrence that corks drop into wrong compartments by reason of the thickest part of, say, an ovally-cut cork having passed between the rollers. Therefore if a very accurate sorting is required it would still be necessary to sort the corks by hand and with the aid of a calibering-board.

A machine constructed in accordance with this invention effectually performs the work of both preliminary sorting by a machine and final sorting by hand. Further, whereas a man can in a day's work and with the aid of a perforated or caliber board sort about eight thousand corks the improved machine can easily sort in the same period about two hundred and fifty thousand corks.

I will now proceed to describe the improved cork-sorting machine by referring to the accompanying drawings, in which—

Figure 1 shows a front elevation. Fig. 2 shows an end elevation. Fig. 3 shows a cross-section of the machine, taken on the line A B of Fig. 1; and Fig. 4 is a separate view of a vertical series of sockets and the corresponding ejectors, both shown in their operative position.

The corks to be sorted are thrown into the hopper a and are then fed by a toothed roller b into channels or delivery-chutes c, where the corks slide along in rows. The rotation of the feed-roller may, for example, be obtained by means of a crank-and-belt driving device d d' e. The channels or delivery-chutes c, of which there are several side by side, are covered with glass plates c' to prevent the corks escaping and at the same time to permit of inspection for avoiding stoppages, each chute guiding a single row of corks one after the other and end for end. Near the lower ends of the said delivery-chutes, extending across all of the delivery-chutes, are provided two slides f and g, mounted in slots or grooves f' and g' in the frame of the machine in such a manner that when both slides f and g are raised the corks p can pass along the channel beneath the slide f, but are retained by the second slide g. When subsequently the two slides are moved down—always together—the slide g will be free of the delivery end of the channel and so allow a single cork to drop out of each channel, while the remaining corks in the channels are temporarily retained by the slide f, which in moving down has blocked the channels. To prevent the corks p from being damaged by the descending slide f, it is advantageous to furnish the lower edge of the said slide with spring-pins f^2. The alternate displacement of the two slides f and g may be advantageously obtained by means of a two-armed oscillating lever h, to one arm of which the slide f is connected by means of a link h', while the slide g is secured in a direct manner. The other arm of the lever h is subjected to the action of a tension-spring h^2. The oscillating lever h is operated by a vertically-reciprocating

guide-piece i, adapted to be guided by its vertical arms i' and i^2 in a vertical direction between suitably-arranged guide-rollers k, fixed to the machine-frame. The guide-piece $i\,i'\,i^2$ receives its reciprocating motion from a crank-shaft l, with crank-pin l' engaged in a slot i^3 of the guide-piece i, the crank-shaft being rotated by any convenient means. These means are shown in the drawings by way of an example as consisting of a set of gear-wheels d^2 l^2, driven by the shaft d', fitted with crank-handle d.

Beneath the outlet-openings of the delivery-chutes or channels c are a number of carrier-rails m' m^2 m^3 m^4 m^5, one beneath the other, and the ends of said rails are mounted in the sides of the frame of the machine and are adapted to turn therein. At the exterior of the frame the ends of the rails are fitted with crank-arms n' n^2 n^3 n^4 n^5, respectively, which latter are pivotally connected to a common vertical bar o. One of the carrier-arms is further provided with a toothed segment q, adapted to be engaged by the rack-teeth q', fixed to the guide-piece i and moving with the latter up and down. In the arrangement shown in the drawings the down motion of the guide-piece i causes the carrier-rails to be turned ninety degrees and afterward to be returned to the normal or operative position by moving the guide-piece upward. In holes in the carrier-rails are fitted, preferably, tapered sockets or rings 1 2 3 4 5 in such a manner that the sockets 2 are situated exactly beneath the sockets 1, the sockets 3 exactly beneath the socket 2, &c., so that the center lines of all the sockets in each vertical series fall into one line, each such vertical series being disposed beneath a separate delivery-channel c. Thus the corks falling from the channels c drop into the corresponding vertical series of sockets, and they would fall through all the sockets 1 2 3 4 5 if the internal diameter of the lower end of all the sockets were the same and larger than the caliber of the cork. As, however, the lower diameter of the succeeding sockets in each series gradually decreases downwardly, it will be obvious that the cork will be retained in that socket out of the series which has the same diameter as the cork. Therefore all the corks retained in the sockets of the same horizontal series must necessarily have exactly the same uniform diameter. In other words, all the corks retained in the sockets No. 1 are of equal size. All the corks retained in the sockets No. 2 are also of equal but slightly smaller size than those of the sockets No. 1, and similarly with respect to all the other sockets. After now a row of corks p have been delivered in the aforesaid manner—*i. e.*, one cork at a time from each channel and dropped into the system of sockets wherein the various sized corks are finally retained in one of the sockets 1, 2, 3, 4, or 5, which corresponds to its diameter—the carrier-rails m' to m^5, together with all the sockets, are reversed through the downward motion of the guide-piece $i\,i'\,i^2$, as previously described—viz., in this case for an angle of ninety degrees—so that all the sockets are caused to assume a true or nearly horizontal position. Hereupon a slide s, guided by means of rollers s' in a frame r, is caused to advance toward the sockets and drive ejector-rods t' to t^5, provided on the cross-bars s^2 of the said slide, into the sockets, so as to eject the corks contained therein and deliver same into separate receiving-chutes u' u^2 u^3 u^4 u^5 for collection in the sorting-compartments v' to v^5 of a receiver v. The corks from each separate horizontal series of sockets always drop into the same compartment, and in the present arrangement of machine five different sizes of corks can be sorted at one time.

The ejector-slide $s\,s'\,s^2$ is connected with an oscillating lever w, pivoted at w' to the frame of the machine and formed with two slightly-curved arms x and y. After the sockets 1 to 5 have been reversed a roller z, mounted upon the guide-piece $i\,i'\,i^2$, is moved down upon the arm x, so as to force the lever w inward and effect the ejecting of the corks from the sorting-sockets. After the corks have thus been ejected the guide-piece i ascends, and thereby presses the roller z against the arm y and causes it to move the lever w outward and withdraw the ejector-slide. After the withdrawal of the ejectors from the sockets the latter are returned into their upright or operative position by the further ascension of the guide-piece, as hereinbefore described. Immediately afterward the said ascending guide-piece strikes the two-armed lever h, and so causes the latter to lower the two slides f and g in order to allow a fresh cork from each delivery chute or channel c to drop into the sockets for the repetition of the previously-described operations.

In the foregoing specification the arrangement is described with reference to its application to one end only of the machine. Although a single arrangement of this description would give good results for practical purposes, it will be more advantageous to apply the same arrangement at both ends of the machine, so as to be driven by a single crank-and-belt driving-gear. As, however, the parts at the two ends of the machine are identical, no special description is required for this double arrangement.

The number of tipping or tilting sockets in the vertical, as also in the horizontal, direction may be varied to suit the number of different sizes of corks to be sorted by the machine and depends also upon the size of the machine.

For the assortment of a single size of cork it may under certain circumstances be sufficient to provide a single horizontal row of tipping sockets, and in such case only the largest-size corks can be sorted out, while the smaller size merely drop through the sockets.

Having fully described my invention, what

I claim, and desire to secure by Letters Patent, is—

1. In a machine of the class described, means successively to feed corks, a plurality of superposed sockets of different sizes to select and hold a cork of proper size and means to eject the selected cork, substantially as described.

2. In a machine of the class described, means to successively feed corks, a plurality of superposed conical sockets of different sizes, means to partially rotate the sockets, and an ejector for each socket and means to simultaneously move the ejectors, substantially as described.

3. In a machine of the class described, means to successively feed corks, a plurality of superposed sockets of different sizes, means to simultaneously partially rotate the sockets, distributing-chutes opposite the sockets, an ejector-pin for each socket, means to simultaneously move the ejector-pins into the partially-rotated sockets to deliver the selected corks into the distributing-chutes, substantially as described.

4. In a machine of the class described, means to successively feed corks, a plurality of superposed conical sockets of different sizes, means to simultaneously partially rotate the sockets, a slide, ejector-pins mounted therein one opposite each socket, distributing-chutes and means to move said slide and pins to eject the selected corks into the distributing-chutes, substantially as set forth.

5. In a machine of the class described, a plurality of superposed conical sockets of different sizes, a delivery-chute to successively deliver corks to the uppermost socket, means to permit but a single cork at a time to drop from said chute, ejector-pins, one opposite each socket, and a guide-piece to first rotate the sockets and then move the ejector-pins, substantially as described.

6. In a machine of the class described, a number of superposed horizontal rows of sockets, the sockets of different rows of different sizes, as many delivery-chutes as there are sockets in a row, a slide to hold the endmost cork in the chute, a slide at the end of the chute to hold the cork released by the former slide, ejector-pins, one pin opposite each socket, arms to rotate the rows of sockets, a bar connecting the arms, a guide-piece to rotate the sockets and then move the ejector-pins when depressed and to actuate the slides when elevated, substantially as described.

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