

1,433,642.

INVENTOR
Herbert O. Olson
BY *Irving J. Wilson*
ATTORNEY

UNITED STATES PATENT OFFICE.

HERBERT O. OLSON, OF ROCKFORD, ILLINOIS, ASSIGNOR TO BURD HIGH COMPRESSION RING COMPANY, OF ROCKFORD, ILLINOIS, A CORPORATION OF ILLINOIS.

RECEIVING RACK.

Application filed February 10, 1920. Serial No. 357,510.

To all whom it may concern:

Be it known that I, HERBERT O. OLSON, a citizen of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Receiving Racks, of which the following is a specification.

This invention pertains in general to racks for receiving and holding a quantity of articles ejected from a machine, for the purpose of holding such articles in rows or stacks, as distinguished from holding them in promiscuous order in a hopper.

More particularly, my invention has reference to receiving and holding in rows or stacks, relatively flat objects, such as rings, washers, disks, or any of irregular peripheral shape; and my present improvements are designed especially for receiving piston rings, although equally well adapted as will appear hereinafter, for receiving other objects.

The primary object of the present invention is to provide a receiving rack of such simple and novel design as to very efficiently receive and hold a relatively large number of articles.

Another object resides in the provision of a machine which will receive a given number of articles discharged or delivered from a given point, holding such articles in a row or stack, and which will automatically receive in succession a plurality of such stacks of articles.

A further object is the provision of a machine characterized by the inclusion of a revoluble carrier having radiating receiving racks, and mechanism for automatically indexing the carrier to successively move the racks to a receiving station after a predetermined number of articles have been delivered onto the next preceding rack.

Still another object is to provide a receiving rack which will function most efficiently in connection with a ring grinding machine of the general character shown in application Serial No. 357,736.

Other objects and attendant advantages will be appreciated as the invention becomes better understood by reference to the following description when considered in connection with the accompanying drawing, in which—

Figure 1 is a front elevation of a re-

ceiving rack embodying my improvements;

Fig. 2, a plan view of the rack;

Fig. 3, a fragmentary view taken on the section line 3—3 of Fig. 2;

Fig. 4, an edge view of a cam lever, described hereinafter;

Fig. 5, an enlarged fragmentary section taken on the section line 5—5 of Fig. 2; and

Fig. 6, a detail showing a cam action, described hereinafter.

As mentioned above, my improvements are applicable for receiving articles of various shapes, and the present illustration, applied to the receiving of rings, is simply one example of the principles involved in my invention.

Referring now to the drawing, it will be observed that I have provided a suitable stand designated generally by character 7, carrying a vertical stud 8 upon and about which are revoluble a pawl arm 9 and a hub 11. This hub carries a plurality of radiating racks, at present in the form of rods 12 inclined upwardly from the hub; and it will be manifest that in the event the articles have not a large central hole, the racks might be shaped as a trough, or to suit the particular requirements.

It is desired to fill these rack bars, one at a time, from a given station; consequently, it is necessary to index the carrier 11 after a rack bar has been filled to move the next succeeding bar into receiving position. In carrying out the example above referred to the piston rings are ejected one at a time and at about, regular intervals from a machine, and it follows that the rack must be indexed quickly and in less time than the interval between ejections. I have, therefore, provided mechanism for automatically indexing the rack in such manner when a predetermined number of rings have been delivered onto a bar, which mechanism will now be described.

Upon a lateral extension 13 of the stand, I mount in suitable bearings, shafts 14 and 15, connected by spur gears 16. The shaft 14 may be driven in any suitable manner in timed relation with the machine from which the articles are ejected; and in the present instance this is through the agency of the chain connection 17, and gear connected shafts 18 and 19, the latter of which is part of the machine referred to. The shaft 15 is

equipped with a worm 21 meshing with a worm gear 22, which carries on its under side a cam 23. This cam is adapted to actuate a rocker arm 24 which shifts through means of a forked arm 25, a clutch element 26 into engagement with a component element integral with a cam 27 loose on the shaft 14. The clutch element 26, splined on the shaft 14, is constantly urged out of engagement by a spring 28. The cam 27, when revolved in a counter-clockwise direction, viewing Fig. 1, will actuate a follower 29, carried by a pendent lever 31 pivotally suspended at 32 from a fixed arm 33. This lever 31 is connected by a link 34 to the pawl arm 9, above-mentioned, which carries a spring-pressed pawl 35 cooperating with a four-tooth ratchet 36 fixed to the rack hub 11. A locking pawl 37 prevents backward rotation of the rack hub, and the pawl 35 is normally engaged behind a tooth by reason of the contractile spring 38, which constantly urges the pawl arm 9 in a counter-clockwise direction, viewing Fig. 2, until limited by the cam 27 and roller 29. From the foregoing, it will be manifest that when the worm wheel cam 23 actuates the arm 24, the cam 27 will be connected to the shaft 14 and carried thereby one revolution in a counter-clockwise direction, Fig. 1. This action of the cam 27 will impart a quick movement to the pawl arm and index the rack one position or 90 degrees, in the present case.

In the operation of my improvements the rings may be delivered onto any one of the rods 12 and will gravitate to a lowermost position thereon. During the interval between each delivery the shaft 14 makes one revolution; and the shafts 14 and 15 are timed through the gears 16 in proportion to the thickness of the rings and length of rods, so that when a rod is filled the worm gear will have made one complete revolution and will thereupon index the rack to move the next succeeding rod to the loading station. In the event that the rings are of different thickness, the gears 16 will be changed for another set giving the appropriate ratio. Suitable means may be provided for stopping the rack at the end of its indexing movement.

It is believed that the foregoing conveys a clear idea of the principles and objects of this invention and while I have illustrated but one embodiment thereof, as it relates to the receiving of piston rings, it

should be understood that various other objects might be received, and that my improvements are susceptible of considerable change and modification without departing from the spirit and scope of the invention as expressed in the appended claims, in which—

I claim:

1. A receiving rack of the character described, comprising a carrier revoluble about a vertical axis, a plurality of rods on said carrier extending radially and inclined upwardly therefrom, whereby piston rings delivered onto the outer ends of the rods will gravitate inwardly thereon, and mechanism for indexing said carrier to successively move the rods to a loading station.

2. A receiving rack of the character described comprising a carrier revoluble about a vertical axis, a plurality of rods on said carrier extending radially and inclined upwardly therefrom, whereby piston rings delivered onto the outer ends of the rods will gravitate inwardly thereon, and mechanism for indexing said carrier to successively move the rods to a loading station, said mechanism comprising a ratchet and pawl device for imparting rotative movement to the carrier to move said rods from one station to another, a quick-acting cam for operating said pawl, a worm and worm gear, means for driving said worm, a cam carried by the worm gear, and means actuated by said cam for putting said quick-acting cam into operation to index the carrier.

3. A receiving rack of the character described, comprising a base having an upright stand, a lateral extension carried by said stand, a carrier mounted on the stand to revolve about a vertical axis, a plurality of racks extending radially and inclined upwardly from the carrier, and mechanism mounted on said lateral extension for indexing the carrier.

4. A receiving rack of the character described comprising a stand, a carrier mounted thereon to revolve about a vertical axis, a plurality of racks on the carrier extending radially and inclined upwardly therefrom and adapted to receive piston rings at their outer ends, whereby said rings will gravitate inwardly on the racks, and mechanism for indexing the carrier to successively move the racks to a loading station.

HERBERT O. OLSON.