My invention relates chiefly to those devices which are used in the retail stores such as grocery stores, delicatessens, etc., wherein bulk articles are sliced and delivered in sliced form to the customers, and the chief use of my invention is in relation to cutting cheese or other articles that are not well adapted to be cut by slicing knives.

The object of my invention is to produce a very efficient slicing machine adapted to cut the softest cheese or similar articles into thin slices as desired with great rapidity and delivering very thin slices intact for the whole surface of the section of cheese or other article that is sliced.

Reference will be had to the accompanying drawings in which Fig. 1 is a plan view of the machine with a part broken away for illustration.

Fig. 2 is an end sectional view on line 2—2 of Fig. 3.
Fig. 3 is a longitudinal sectional view on line 3—3 of Fig. 1.
Fig. 4 is a sectional detail on line 4—4 of Fig. 3.

The machine is provided with a base preferably of aluminum casting as indicated by 2 from which there extends a yoke or overhead frame section 3 extending transversely of the base and into the central upper portion of which there is the thumb screw stud 4 to which a cutting wire 5 is secured, the lower end of the wire being secured at 6 in the base casting.

Transversely of the bed or base casting 2 there are cross guideway bars 7 here shown as being secured by screws 8 to the bed casting 2. A gear rack bar 9 is secured at one end of the base casting 2 by screws 10. This rack may also be integral with the bed plate if desired. Mounted to slide crosswise of the bed on the guideways 7 there is a carrier box or trough 11 sliding on the guideways 7 by means of guideway 12 on the bottom of the box or trough. The trough is provided with a cheese clamping plate 13 adjusted laterally by the screws 14 to clamp a block of cheese 15 or any other article desired to be cut, the only feature of this clamping plate 13 is that the block of cheese may be held without lost motion in the trough although the operator may, as desired, hold the block of cheese or other article with his hands as relates to the side fit of the block in the trough 11. Extending longitudinally of the bottom of the trough 11 there is a slot or aperture 16 which extends from end to end of the box or trough excepting at the end portions 17 which end portions 17 together with the cross guides 18 connect the two sides of the unitary box or trough structure. Mounted in the end portions 17 there is a screw shaft 18 upon which there is mounted a female threaded block 19 having a projection 20, the projection 20 being adapted to engage the cheese 16 and thus move it under the influence of the screw 18. The screw shaft 18 is provided with a circular groove 21 which is engaged by a notched washer 22 (see Fig. 4) which assists in holding the screw shaft against end thrusts. The outer end 23 of the screw shaft 18 has fixed thereon a toothed ratchet 24 which is engaged by a similar ratchet block 25 which is adapted to slide longitudinally on the shaft end 23 a short distance sufficient to permit the engagement and disengagement of the teeth of the two ratchet blocks 24 and 25 and this sliding movement is controlled in one direction by a spring 27 on the end 23 of the shaft and this spring abuts against a small milled hand wheel 28 secured by screw 29 to the end 25 of the screw shaft 18. Upon the ratchet block 25 there are pinion gear teeth 30 and a circular flange 31 and mounted on the side of the gear rack 9 there is a guide rail 32 which extends only along the central body portion of the rack 9 and is wanting at a given distance at each end of the rack.

The function of the flange 31 and the guide rail 32 is for the purpose of separating or withdrawing the dental ratchet blocks from each other to prevent the gear pinion 30 from driving the shaft 18 during the travel of the carrier trough transversely of the frame through the region occupied by the guide rail 32 and permitting the rack through the medium of the pinion teeth 30 to revolve the screw shaft 18 in one direction only whenever the trough travels over the end sections of the rack 9 whereat the guide rail 32 is wanting.

The shaft of the ratchet teeth in the blocks 24 and 25 is so mounted that the shaft 18 is revolved by the ratchet in one direction only whereby it forces outwardly the projection 20 in discharging the cheese from the trough toward the cutting wire 5. The screw 18 is revolved in the reverse direction to retract the nut 19 with its projection 20 through the medium of the hand wheel 28.
and this movement is brought about whenever the trough is in position with the flange 31 against the guide rail 32 which is that portion whereat the clutch or dental ratchets 34 and 35 are disengaged. However, the operator may lift the box or trough 11 entirely free from the bed plate and then through the medium of the hand wheel 28 adjust the nut 19 to the desired position.

In the service of the machine, the cheese desired to be used with this machine normally comes in blocks the right size to fit into the trough 11 being the standard package now sold for certain qualities of cheese, particularly that class of cheese which is rather soft and does not readily yield to being cut nicely with a knife of any sort. Then the operator moves the box transversely by hand across the bed and at each end of the stroke whereat the rail 32 is absent, the rack feeds forward the screw 18 projecting the cheese outward to be engaged by the cutting wire 5 whenever the trough is moved past the wire. The pitch of the screw shaft 18 and the length of the guidergal 32 is such that the machine is normally adapted to cut cheese into the thickness that the user most desires such as slices for sandwiches or a given number of ounces or units that are involved in the customary sales, so that when a customer orders sliced cheese for sandwiches or other similar purposes, the operator simply moves the trough backward and forward across the bed the full limit of the stroke and at each stroke forward or back a slice of cheese is severed by the wire 5 and falls onto the right end of the table 2 or the landing place 33 one at each side of the cutting wire. Thus the merchant or user may very rapidly provide whatever slices are desired of the cheese or other article adapted to be cut by a machine of this class in uniform pieces entirely intact without breaks or crumbs commonly involved in the cutting of cheese with other machines using knives.

With a piece of fine strong stiff wire any cheese may be cut in this way in the finest manner possible without breaks or losses and cut uniform slices which is a great desideratum.

What I claim is:

1. In a machine of the class described, a bed plate provided with ways, a carrier trough mounted on said ways and adapted to be reciprocated across the bed, a cutting wire at the end of the said trough adapted to be engaged by the article to be cut as the said carrier trough is reciprocated past the region of the cutting wire, the said carrier trough adapted to be reciprocated a greater distance than the width of the trough and means for feeding forward the article carried by the 75 trough at each end of the stroke of the said carrier.

3. In a machine of the class described, the combination with a bed, of a carrier trough mounted to be reciprocated across the bed, a wire in the path of travel of the trough secured at points exterior thereto and adapted to be engaged by an article carried by the trough as the trough is moved past the said wire and means adapted to feed forth the article carried in the trough, which feeding means is actuated at the end of the stroke after said article has cleared said wire.

4. In a machine of the class described, the combination with a bed provided with ways, of a cutting wire extending upwardly from the bed, a trough for carrying the article to be cut mounted on said ways adapted to be reciprocated with its end adjacent to and passing by the said cutting wire, a screw carried by the trough, a nut on said screw having a projection adapted to engage an article carried in said trough, and mechanism connected with the bed and adapted to operate the said screw at the end of each reciprocation of the said trough.

5. In a machine of the class described, a bed, a cutting wire mounted up from the bed, a carrier trough mounted to be reciprocated back and forth across the bed and with its end passing by the said cutting wire, a rack mounted on the bed and a screw shaft carried by the said trough and having a pinion on the said shaft adapted to drive the said shaft by means of the said pinion engaging the said rack as the said carrier trough is moved across the bed.

6. In a machine of the class described, a cutting element, a bed on which the said cutting element is fixed and supported, a carrier trough mounted to reciprocate transversely across the bed and past the position of the cutting element, a screw shaft adapted to feed forward an article carried by the carrier trough, a rack mounted on said bed, a pinion carried by the said screw shaft and adapted to engage the said rack, and means for engaging and disengaging the said screw shaft from said pinion during predetermined portions of each reciprocation.

7. In a machine of the class described, a carrier element for carrying an article across the path of a cutting element, a stationary cutting element, a bed in which the said cutting element is fixed and upon
which said carrier element is reciprocated, a rack fixed to the bed, a pinion, a shaft on which said pinion is mounted carried in said carrier element, a flange on the said pinion, a guide rail in connection with the said bed adapted to engage the flange of the said pinion and move the same lengthwise of the said screw shaft, and dental ratchets adapted to engage and be disengaged by the said flange and guide rail from driving the said shaft by the said pinion.

8. In a machine of the class described, a supporting bed, a carrier trough mounted on the said bed and adapted to be reciprocated across the said bed, a yoke extending upward and over the top of the bed, a cutting wire extending from the said yoke vertically to the bed, a screw shaft extending longitudinally of and carried by the said carrier trough, a rack extending transversely of the bed and fixed thereto, a pinion mounted on the said shaft of the said carrier trough and adapted to engage the said rack and revolve the said screw shaft as the said carrier trough is reciprocated longitudinally of the said rack, a clutch mechanism for engaging and disengaging the said pinion from driving the said screw shaft, and means connecting with the said bed for disengaging the said clutch mechanism and a spring for re-engaging the said clutch mechanism.

Signed at Chicago, in the county of Cook and State of Illinois, this 10th day of November, 1927.

MICHAEL LUDWIG AST.