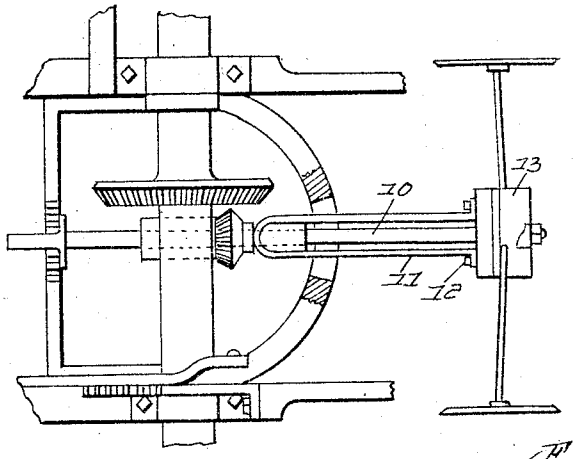
W. D. RAINEY.

CHOPPER HEAD FOR COTTON CUTTING MACHINES.

APPLICATION FILED SEPT. 18, 1920.

1,365,342. Patented Jan. 11, 1921.

Fig. 1.



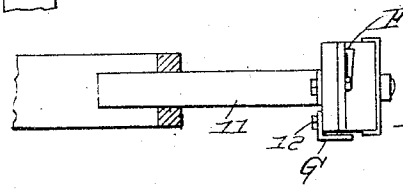




Fig. 2.

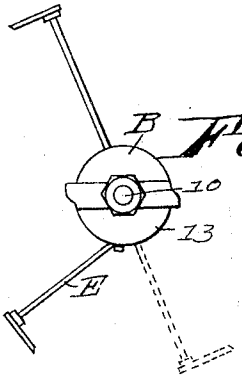



Fig. 3.

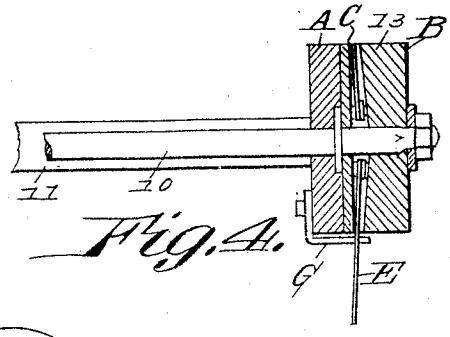



Fig. 4.

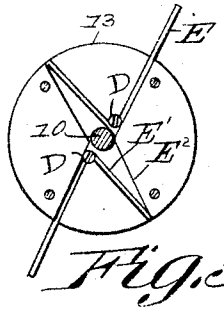



Fig. 5.

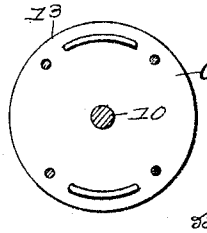



Fig. 6.

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# UNITED STATES PATENT OFFICE.

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## CHOPPER-HEAD FOR COTTON-CUTTING MACHINES.

1,365,342. Specification of Letters Patent. Patented Jan. 11, 1921.

Application filed September 18, 1920. Serial No. 411,054.

*To all whom it may concern:*

Be it known that I, WILLIAM D. RAINEY, a citizen of the United States of America, and resident of Wilton, in the county of Little River and State of Arkansas, have invented certain new and useful Improvements in Chopper-Heads for Cotton-Cutting Machines, of which the following is a specification.

This invention relates to chopper heads and the parts associated therewith used primarily on cotton chopping machines, the said invention having for its object the production of a rotary cutter head associated with novel means whereby the blades have a yieldable mounting resiliently connected to the head whereby the resilient or spring action augments the travel or movement of the blades so that they have movement with relation to and independently of the rotation of the cutter head.

An object of this invention furthermore is to produce a chopper head and chopping apparatus associated therewith wherein the chopping blades are momentarily retarded to increase the tension of the resilient member and then released so that the resilient member causes the blade to sharply impinge or impact the object with relation to which it operates.

With the foregoing and other objects in view, the invention consists in the details of construction and in the arrangement and combination of parts to be hereinafter more fully set forth and claimed.

In describing the invention in detail, reference will be had to the accompanying drawings forming part of this specification wherein like characters denote corresponding parts in the several views, and in which—

Figure 1 illustrates a plan view of a fragment of a chopping machine with the device embodying the invention applied thereto;

Fig. 2 illustrates a view of the cutter head with the blades omitted;

Fig. 3 illustrates an end view of the cutter head and cutters;

Fig. 4 illustrates a sectional view of the cutter head on an enlarged scale;

Fig. 5 illustrates a sectional view of the cutter head showing the face on one side of the joint between the sections of the cutter head, and

Fig. 6 illustrates a face view of the section on the opposite side of the joint.

The mechanism shown in Fig. 1, in so far as it deals with the means for rotating the cutter head, is the same as disclosed in my application filed August 19, 1919, Serial Number 318,449, and as it is illustrated here simply for the purpose of showing the applicability of the chopper head to the driving mechanism, it is believed unnecessary to describe the parts of the cutter rotating means except to say that the cutter head is mounted on a rotatable shaft 10 which is suitably journaled from the driving mechanism.

The cutter head and the parts associated therewith include a section A in which the shaft is rotatable, the said section A being held stationary by reason of its being secured to a bracket 11 by fastenings 12 such as bolts or the like. The section B of the cutter head is rotatable with the shaft, and there is also a face plate C mounted on the shaft in spaced relation to the section B, the said section B and face plate being coupled by studs D which constitute anchors or engaging members for the spring arms E which spring arms are curved around the studs and have their ends lying in recesses E′ (by which shoulders $E^2$ are formed), against which the ends of the spring arms engage. The recesses E′ constitute clearances which permit the oscillation of the spring arms, and therefore, the cutter arms may swing and have movement independently of the rotation of the section B of the cutter head. In Fig. 3 of the drawing the full line and dotted line positions of the spring arm are illustrated so that an idea of the independent movement of the spring arm may be judged.

An abutment or trip G is secured to the stationary section A and projects into the path of travel of the spring arms, but the trip is of such a nature as to yield and release the spring arms when the full tension of the spring has been exerted against it and this is made possible by reason of the fact that the trip is more rigid than the spring arms yet of sufficient resiliency to yield under the pressure which is exerted by reason of the engagement of the spring arms with the shoulders of the head.

The section B may be set at different posi-

tions with relation to the trip so that the spring arms may have their tension increased or diminished for increasing or diminishing the force of the stroke, according to the requirements in practice.

I claim:

1. In a cotton chopper, a rotatably mounted shaft, a stationary member with relation to which the shaft rotates, a member mounted for rotation with the shaft, a member in spaced relation with and connected to the section rotatable with the shaft, studs extending through the space between the last mentioned members and anchored therein, spring arms extending into the space between the last mentioned members and each embracing a stud, means for anchoring the inner end of each spring arm, a blade carried by each spring arm, and means carried by the stationary member for tripping the spring arms.

2. In a chopper head for cotton cutting machines, a rotatable shaft, a stationary member with relation to which the shaft rotates, a member mounted on the shaft for rotation with it, a disk on the shaft in spaced relation to the member, studs connecting the disk and member, the said member having recesses in its face forming shoulders, spring arms extending into the space between the member and disk, the said spring arms embracing the studs and having their free ends anchored against the shoulders of the member, blades carried by the spring arms, and means for arresting and releasing the spring arms.

3. In a chopper head for cotton cutting machines, a rotatable head, spring arms anchored thereon for movement independently of the member, blades carried by the spring arms, and means for retarding the spring arms while the member is moving, the said retarding means including the release of the spring arms when predetermined tension is exerted.

WILLIAM D. RAINEY.