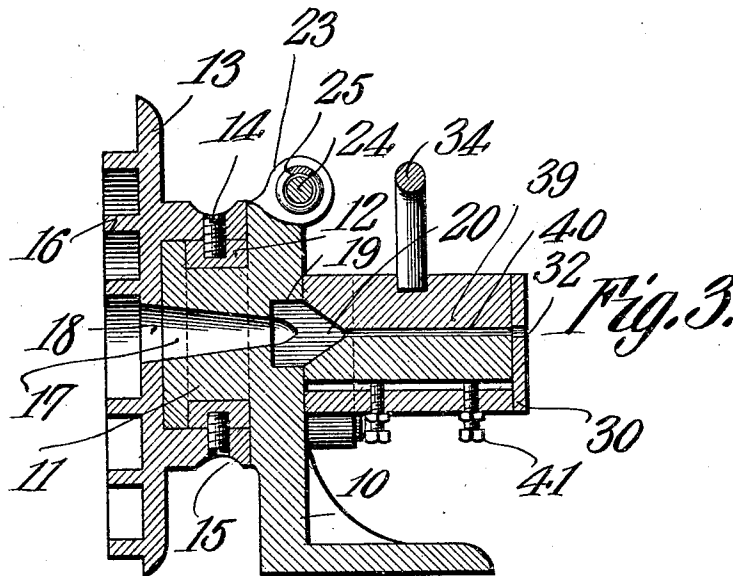
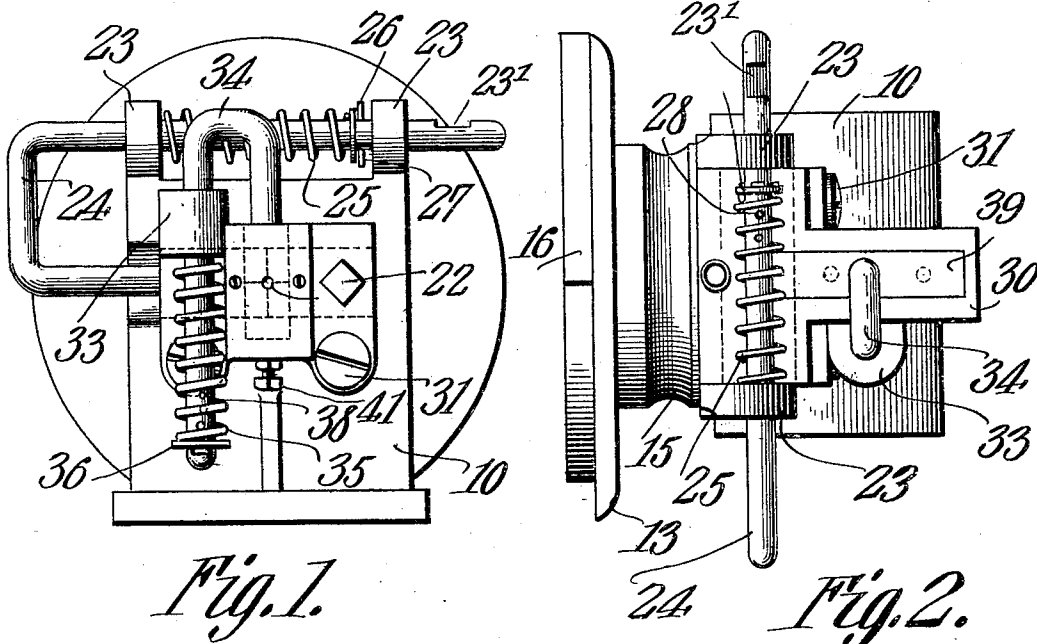


E. C. WILLIAMS.
ATTACHMENT FOR TWINE SPINNING MACHINES.
APPLICATION FILED MAY 28, 1908.

931,827.

Patented Aug. 24, 1909.
2 SHEETS—SHEET 1.



Witnesses
E. C. Williams
Williams

Inventor
Eugene C. Williams
By *C. A. Snow & Co.*
Attorneys

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Fig. 4.

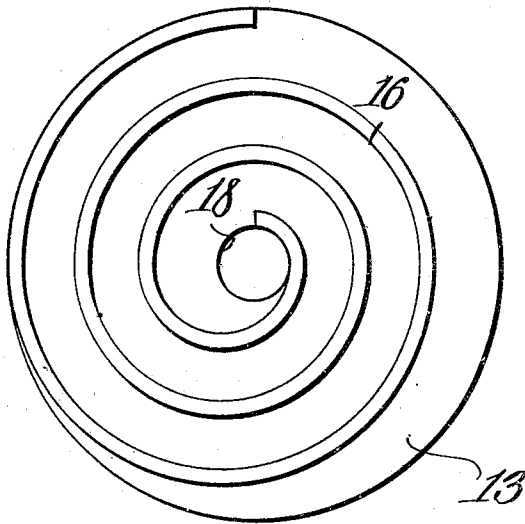


Fig. 5.

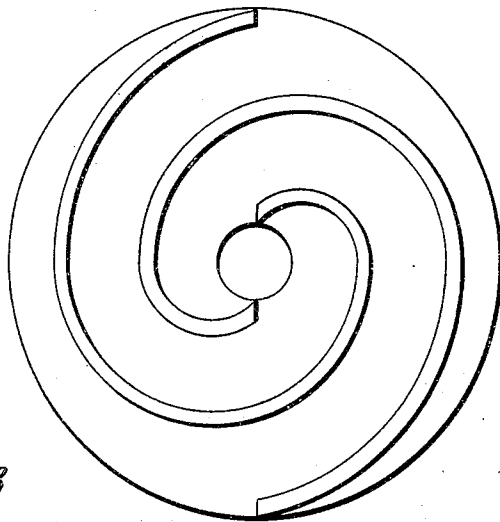


Fig. 6.

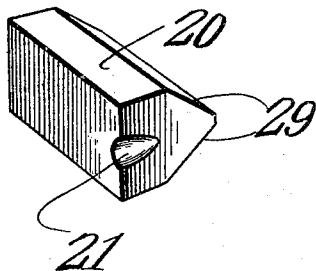
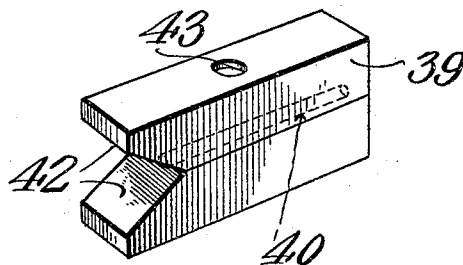


Fig. 7.



Witnesses
E. C. Williams
W. C. Williams

Inventor
Eugene C. Williams
By *C. A. Snow & Co.*
Attorneys

UNITED STATES PATENT OFFICE.

EUGENE CLAUDE WILLIAMS, OF STILLWATER, MINNESOTA.

ATTACHMENT FOR TWINE-SPINNING MACHINES.

931,827.

Specification of Letters Patent. Patented Aug. 24, 1909.

Application filed May 28, 1908. Serial No. 435,488.

To all whom it may concern:

Be it known that I, EUGENE CLAUDE WILLIAMS, a citizen of the United States, residing at Stillwater, in the county of Washington and State of Minnesota, have invented a new and useful Attachment for Twine-Spinning Machines, of which the following is a specification.

This invention has relation to spinning machines, and more especially to those used in the spinning of twine with special reference to what is commonly called "the nipper."

One object of the invention is to provide an improved general form of nipper for twine spinning machines.

A second object of the invention is to provide an improved form of condenser for such machines so arranged as to direct the loose fibers of the sliver properly through the nipper.

A third object of the invention is to provide an improved form of nipper jaws with means for adjustably varying the tension between the same.

With these and other objects in view, as will appear hereinafter, the invention consists of a standard whereon is rotatably mounted an improved form of condenser and which further supports improved nipper jaws and the means for maintaining proper tension therebetween.

The invention further consists in certain novel details of arrangement, and combinations of parts hereinafter fully described, illustrated in the accompanying drawings, and specifically set forth in the claims.

In the accompanying drawings like characters of reference indicate like parts in the several views, and; Figure 1 is a rear elevation of the device. Fig. 2 is a top plan view thereof. Fig. 3 is a longitudinal section therethrough. Fig. 4 is a front elevation of one form of the condenser. Fig. 5 is a front elevation of a modified form of condenser. Fig. 6 is a perspective detail of one of the transverse nipper jaws. Fig. 7 is a perspective detailed view of the pair of longitudinal nipper jaws.

The numeral 10 indicates a standard which is adapted to be attached to one of the usual forms of twine spinner. This standard is provided with a channeled jour-

nal 11 and a ring 12 is held in the channel of the journal to rotate therein. A condenser 13 is mounted on the ring 12 being secured thereto by means of suitable screws 14 or the like device. The condenser 13 is provided with a belt groove 15. The condenser comprises a flat plate whereon is rigidly formed one or more spiral ribs 16 as best seen in Figs. 4 and 5.

The standard 10 is provided with a frusto-conical opening 17 centrally disposed with reference to the journal 11. A frusto-conical opening 18 is made in the condenser and forms a continuation of the frusto-cone 17. It is preferred that the spiral ribs 16 should terminate with their inner surfaces coincident with the edge of the opening 18.

A transverse recess 19 is formed immediately to the rear of the frusto-conical opening 17. Within this recess there is carried a pair of nipper jaws 20 each of which has at its opposed end a semi-conoidal recess 21 arranged to form a continuation of the frusto-cone 17. A set screw 22 is provided to hold one of the said jaws. Lugs or ears 23 are provided upon the standard. Within the ears 23 is slidably mounted a presser bar having a notch 23' and a U-shaped end as indicated at 24. The U-shaped end of the presser bar is arranged to contact with one end of one of the nippers 20, and by co-action of the stop 22, hold said nippers firmly together. A spring 25 is held upon this bar and has one end arranged to bear against one of the ears 23 while the other end bears against a collar 26 slidably mounted on the presser bar. A pin 27 is held to pass through one of a series of holes 28 in the presser bar and there is thus provided a means for adjusting the tension of the spring 25 so that the nipper jaws may be more or less firmly held together. In the preferred form of the device the rear portion of the nipper jaws 20 is beveled as indicated at 29 for a purpose hereinafter to be described.

A cage 30 is secured to the standard 10 by means of suitable screws 31. This cage is open at the top and in the rear wall thereof is formed an orifice 32 in axial alinement with the condenser. The cage 30 is further provided with an ear 33 wherein is mounted a presser bar 34 similar in form to the

presser bar 24. A spring 35 is held on this presser bar and there is provided a collar 36, pin 37 and series of holes 38 for the purpose of adjusting the spring in the same manner as the spring 25 is adjusted. With-
 5 in the cage 30 are held nipper blocks 39, the same being longitudinally disposed with said cage. Each of the nipper blocks 39 has a groove upon its opposed surface so arranged
 10 that when the nipper blocks are in position the groove forms a passage 40 therethrough, said passage being in axial alinement with the opening 32 and the condenser 13. Suitable adjusting screws 41 are provided in the
 15 bottom of the cage 30 to regulate the height of the lower nipper block 39. The front end of the jaws 39 are cut away as indicated at 42 to closely embrace the beveled portion 29 of the nipper jaws 20 and thus form a con-
 20 tinuous passage for the sliver. The upper jaw 39 may be recessed if desired as indicated at 43 for the purpose of receiving one end of the presser bar 34.

In the operation of this device it is intended that the same shall replace the nipper ordinarily used on twine spinning machines. The sliver already formed in a suitable machine is led from the can in which it is custom-
 25 ary to form the rough sliver up over suitable pulleys and such other guiding mechanism as may be desired. From there it is led through the frusto-conical opening and the two pairs of nippers and out through the opening 32 to the twisting
 30 frame, which may be of any preferred construction. In the operation of drawing the sliver through the nipper, the tension will be kept constant by the constant pressure of the spring, the conoidal recess 20 will guide
 35 the main body of the sliver being drawn into the twisting frame while at the same time the spiral ribs 16 will serve to force any stray fibers that may spring out from the sliver into the frusto-cone 18.

By providing two sets of nippers disposed one back of the other, the sets applying pressure in different planes, one set of nippers will act to compress any of the loose fibers which might spread between the other set of
 45 nippers.

It will be understood that by minor changes in the form and proportion of this device the same may be adapted to any form of twine machine. It is not therefore,
 55 desired to confine the invention to the exact form herein shown and described, but it is wished to include all such as properly come within the scope of the invention.

Having thus described the device what is
 60 claimed as new is:—

1. In a device of the class described a rotatable spiral sliver condenser having an orifice, and means for rotating the condenser.

2. In a device of the character described,
 65 a sliver condenser comprising a rotatable

plate with a centrally disposed orifice, and a spiral rib formed upon the surface of said plate to gather the loose fibers and direct them to the orifice; in combination with means for rotating said plate.

3. In a device of the character described, a standard, a rotatable sliver condenser mounted upon said standard, means to rotate said condenser, a pair of nipper jaws disposed transversely of and behind said
 70 condenser, a second pair of nipper jaws disposed longitudinally of said condenser and behind said first jaws, and means to maintain a predetermined pressure between the jaws of each pair.

4. In a device of the character described, a standard, a rotatable sliver condenser mounted on said standard, means to rotate said condenser, a pair of nipper jaws disposed transversely of and behind said con-
 80 denser, said jaws lying end to end, a second pair of nipper jaws disposed longitudinally of said condenser and behind said first jaws, said second jaws lying side by side with the plane of their opposed sides at an angle to the plane of the opposed ends of the first pair, said planes intersecting in the axis of the device, and means to maintain a prede-
 85 termined pressure between the jaws of each pair.

5. In a device of the character described, a standard, a rotatable sliver condenser mounted on said standard, means to rotate said condenser, a pair of nipper jaws disposed transversely of and behind said con-
 90 denser, said jaws lying end to end and the opposed ends each having a semi-conoidal recess arranged to form a conoidal extension to said condenser, a second pair of nipper jaws disposed longitudinally of said condenser and behind said first jaws, said jaws lying side by side with the plane of the opposed sides at an angle to the plane of the opposed ends of the first pair, said planes intersecting in the axis of the device, said second jaws having a pair of opposed longitudinal grooves arranged to form a tube, and means to maintain a prede-
 95 termined pressure between the jaws of each pair.

6. In a device of the character described, a standard, a rotatable sliver condenser mounted on said standard, means to rotate said condenser, a pair of nipper jaws disposed transversely of and behind said con-
 100 denser, a second pair of nipper jaws disposed longitudinally of said condenser and behind said first jaws, and spring actuated presser bar to maintain a predetermined pressure between the jaws of each pair.

7. In a device of the character described, a sliver condenser comprising a rotatable plate provided with a centrally disposed orifice and a spiral rib formed upon the sur-
 105 face of said plate to gather the loose fibers

and direct them to the orifice, means to rotate said condenser, a pair of nipper jaws disposed transversely of and behind said condenser, a second pair of nipper jaws disposed longitudinally of said condenser and behind said first jaws, and means to maintain a predetermined pressure between the jaws of each pair.

In testimony that I claim the foregoing as my own, I have hereto affixed my signature 10 in the presence of two witnesses.

EUGENE CLAUDE WILLIAMS.

Witnesses:

ROBT. J. HENDERSON,
WILLIAM T. ALEXANDER.