

No. 679,121.

Patented July 23, 1901.

F. E. GARNER.
THREAD GUIDE AND CLEANER.

(Application filed Oct. 5, 1900.)

(No Model.)

Fig. 1.

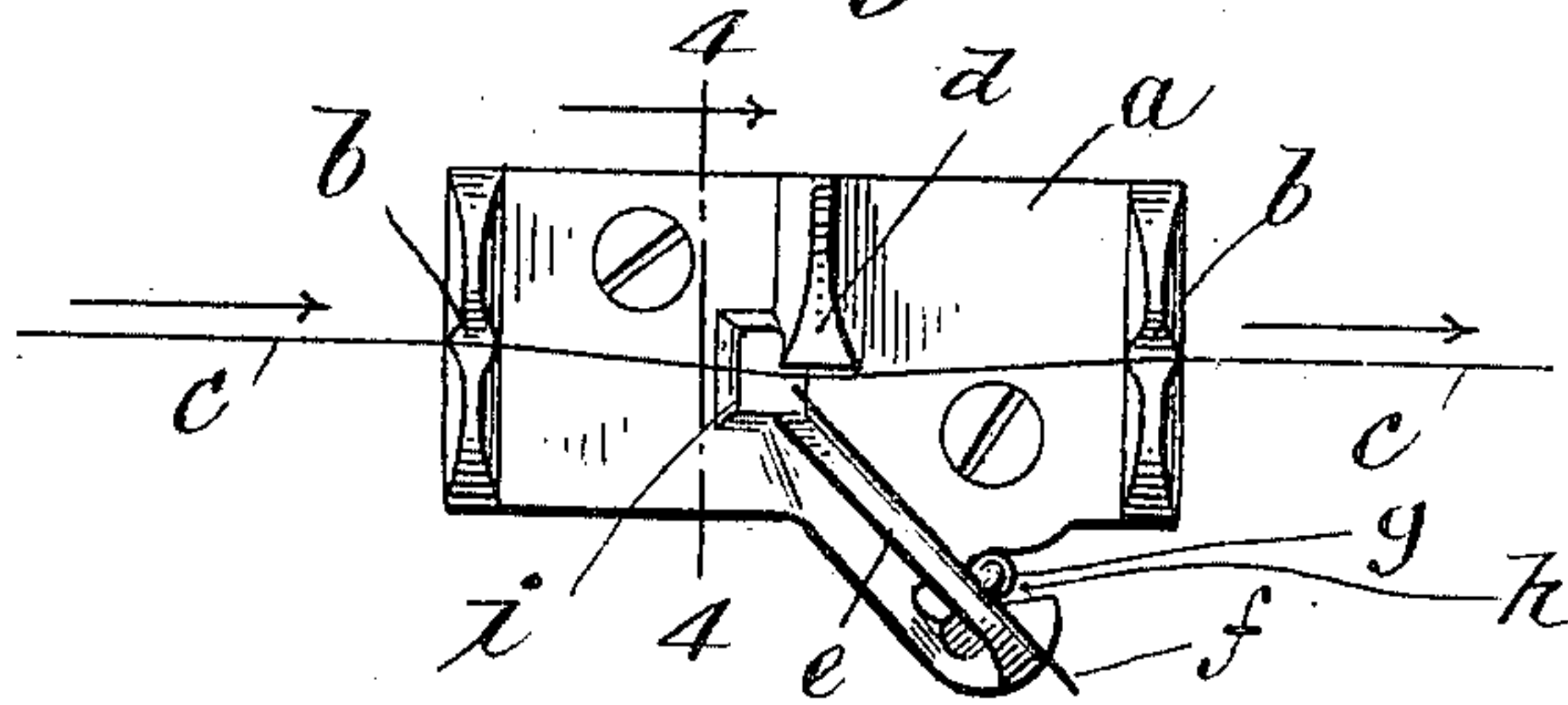


Fig. 2.

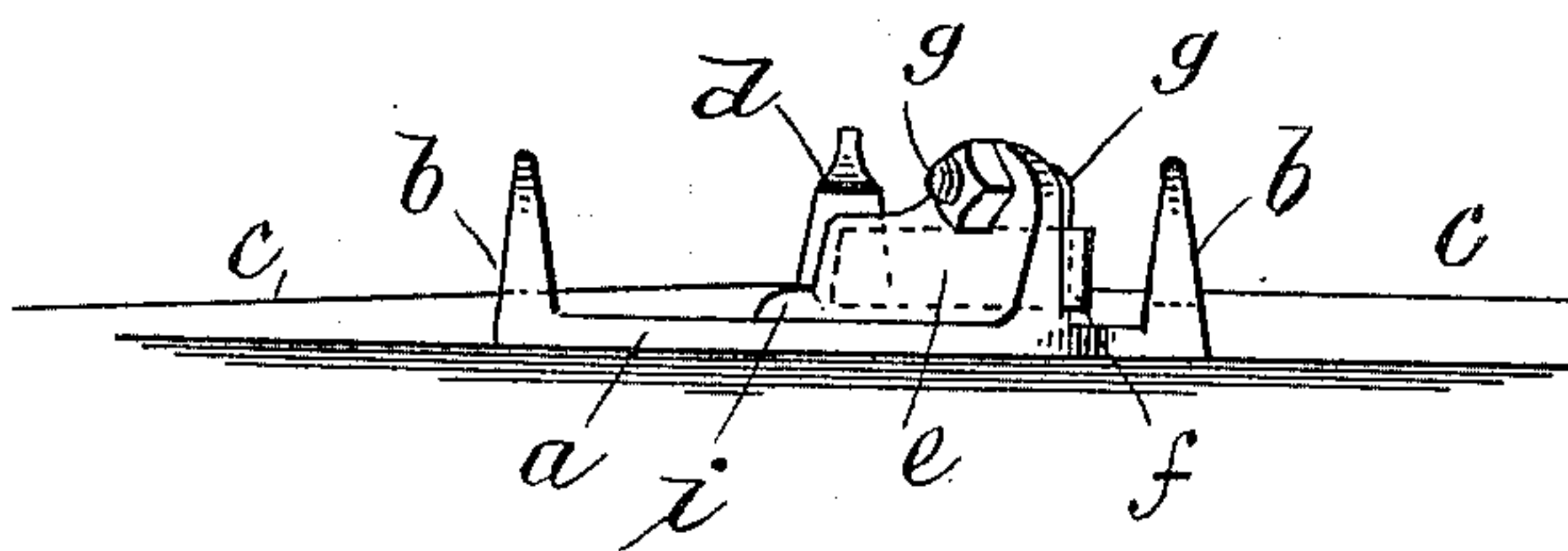


Fig. 3.

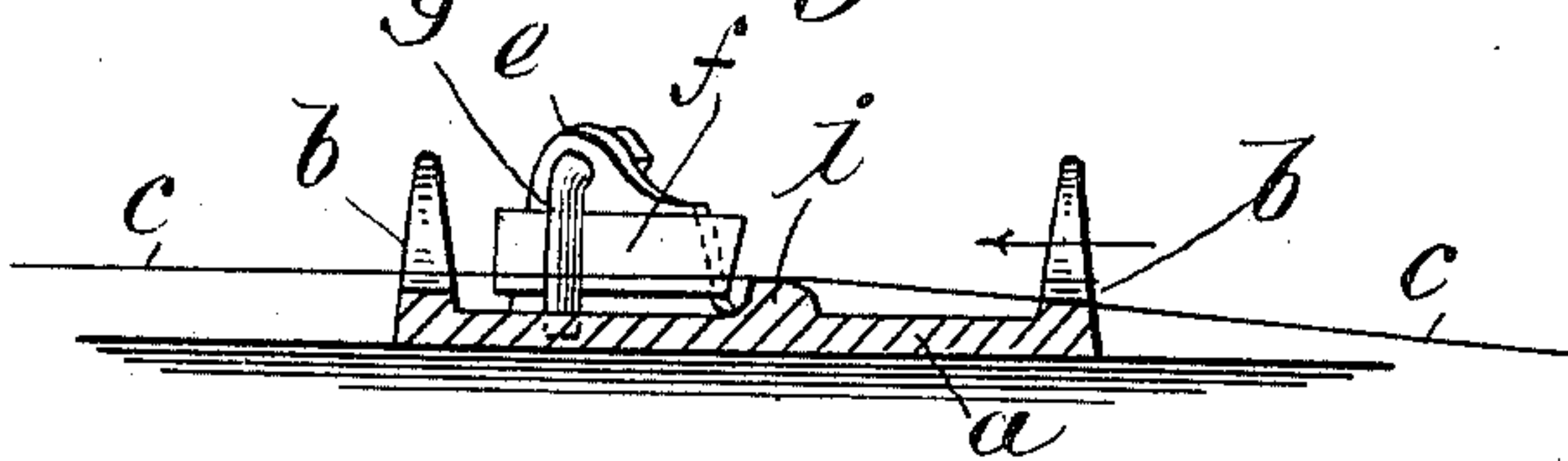
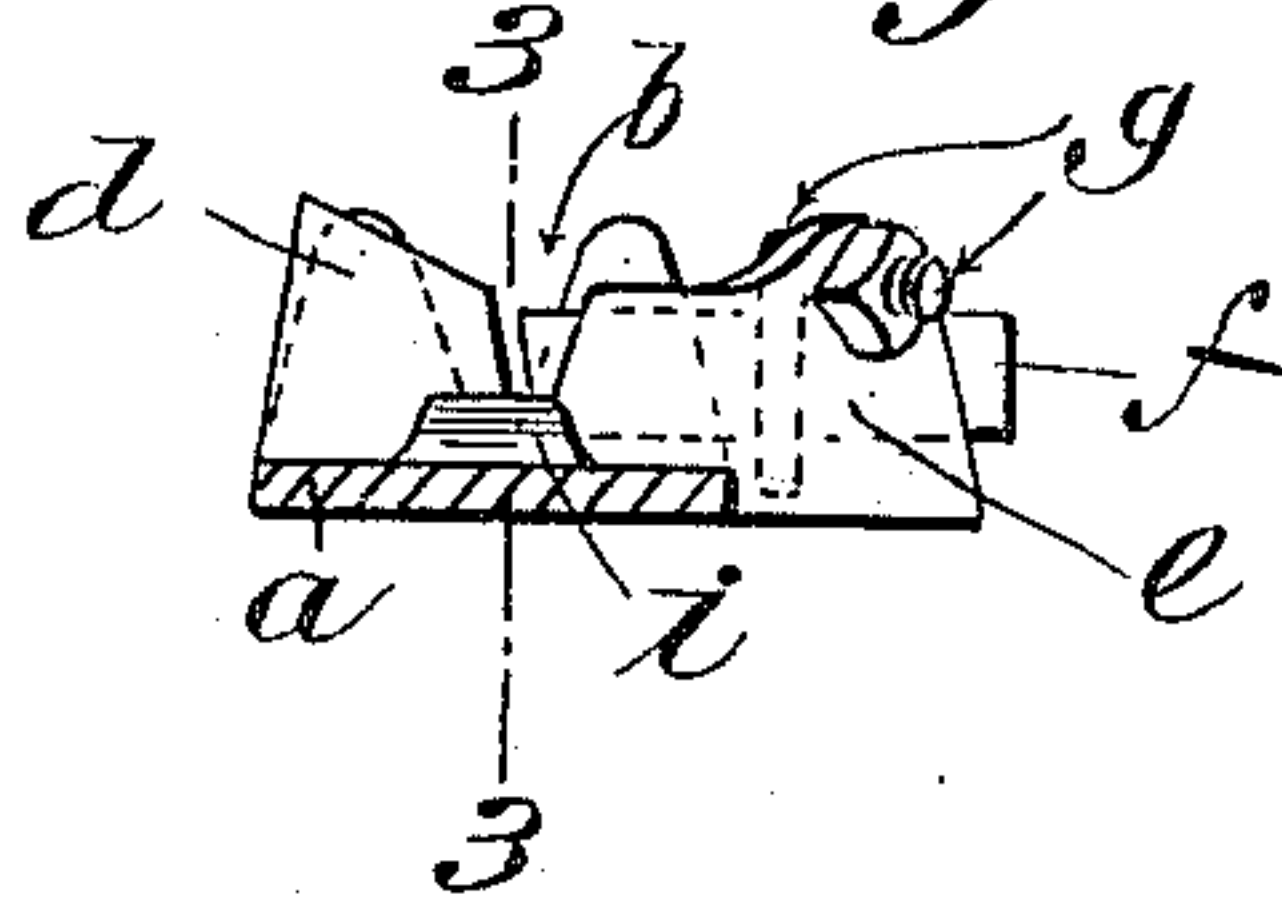


Fig. 4.



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UNITED STATES PATENT OFFICE.

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THREAD GUIDE AND CLEANER.

SPECIFICATION forming part of Letters Patent No. 679,121, dated July 23, 1901.

Application filed October 5, 1900. Serial No. 32,162. (No model.)

To all whom it may concern:

Be it known that I, FRANK E. GARNER, a citizen of the United States of America, residing at Long Meadow, in the county of Hampden and State of Massachusetts, have invented new and useful Improvements in Thread Guides and Cleaners, of which the following is a specification.

This invention relates to yarn-guides for spooling or winding machines, and has special reference to guides of that class adapted to strip off "slugs" or bunches of fiber which are common on certain grades and kinds of yarn, the object of the invention being to provide a guide for the yarn which in itself comprises a cleaner, whereby if an imperfect spot occurs in the yarn of such a size as would show in the finished goods it will be caught in the guide, and if not cleaned off the yarn the latter will be broken and when the ends are tied the imperfect piece may be removed.

The invention consists in the various novel features of the construction set forth in the following specification and pointed out in the claims.

In the drawings forming part of this specification, Figure 1 is a plan view of a yarn guide and cleaner embodying my invention. Fig. 2 is an elevation thereof, projected from Fig. 1. Fig. 3 is a longitudinal section looking toward the cleaner-blade and taken on line 3 3, Fig. 4. Fig. 4 is a cross-section on line 4 4, Fig. 1.

The guide or cleaner consists of a metal body *a*, preferably of some such metal as brass, for instance, which is not readily oxidizable. This is of the rectangular form shown, and each end thereof is turned upward and has therein the centrally-located V-shaped notch *b*, which the yarn *c* runs in. At a point about midway between said ends is located the abutment *d*, lying transversely of the body *a* and extending from one side toward the center thereof, its inner end lying just beyond the centerline of said body, to the end that a yarn drawn through the two V-shaped notches *b* will be deflected out of a straight line by the said inner edge of said abutment. The latter is preferably inclined backward from its base, as shown in Fig. 4. From a point directly opposite the inner edge of said abutment a rib *e* extends at an angle outward toward and

somewhat beyond the side of the body *a*. One side of this rib is substantially vertical to the surface of the body *a* and has bolted or secured thereto in any suitable manner a spring-blade *f*, whose inner end is made parallel with the inner edge of the abutment *d*. This blade should be secured near one end thereof to the rib *e* and may be secured thereto in any suitable manner.

In the drawings a good fastening device for the blade is shown, which consists of a bolt *g*, having an end thereof which constitutes the head of the bolt turned at right angles to the threaded part thereof. The threaded end of the bolt passes through a hole in the rib *e*, and a nut is applied to the end of the bolt projecting through said rib, whereby said bolt may be drawn up to bring the head thereof to a bearing against the blade *f*, which is interposed between it and the vertical side of the rib *e*. By means of this bolt *g* the blade *f* may be adjusted lengthwise toward and from the edge of the abutment *d*, with which its end is parallel. To prevent the head of the bolt from turning, the end thereof is turned downward and is made long enough to enter a slot *h*, cut in the base of the rib *e*, as shown in Fig. 1.

It is found by experience that in the case of slack-twisted yarns a thick slug may become more or less flattened out in a vertical plane by running through the said V-shaped notches, and therefore liable to run through the narrow passage between the end of the spring-blade *f* and the edge of the abutment *d* without being caught on the said blade. To guard against this, a flat-topped boss *i* is cast on the body *a* just in front of the base of the abutment *d*, the upper surface of which is higher than the plane of the bottom of the two notches *b*, to the end that a flattened slug on the yarn may by running over the flat top of said boss be turned over, so that the flat sides thereof will lie in a horizontal plane, and thus insure its being caught on the edge of the blade as it passes into the vertical space between the edge of said blade and the edge of said abutment.

It is obvious from the above description that if a yarn is running through the guide in the direction of the arrows, Fig. 1, and a slug or enlargement on the yarn of such di-

mensions as will not permit of its passage between the blade and the abutment *d*, it will by engagement with the edge of said blade draw the latter over against the edge of said abutment, by reason of the yielding character of said blade and because of its position of inclination against the direction of movement of said yarn. The adjustability of the blade makes it possible to provide a space between the edge of the blade and the edge of the abutment *d* suitable to any size of yarn, and the inclined position of the spring-blade relative to the direction of movement of the yarn makes it impossible for the yarn to break the blade, for the latter is supported by the bearing of its edge against the edge of the abutment as soon as any pressure is applied to its free end, and as the blade springs the center of it bows inwardly against the side of the vertical rib to which it is secured. Furthermore, the fact that the edge of the said abutment projects slightly beyond the straight line a yarn would take between the two V-shaped notches at each end of the guide-body tends to bring any imperfection in the yarn against the edge of the blade *f*. The latter may be sharpened, if desired. This guide and cleaner may be applied to any winding-frame; but it is especially adapted to yarns for knitting-machines, in which slugs on the yarn are the cause of the breakage of a great many needles and the consequent production of imperfect goods.

Having thus described my invention, what I claim, and desire to secure by Letters Patent of the United States, is—

1. A yarn guide and cleaner comprising a body, centrally-located guide-notches near the ends of said body, a spring-blade secured by one end to said body, and whose free end lies in close proximity to the line of movement of the yarn through said guide-notches, and an abutment whereby the movement of the free end of the blade may be limited, substantially as described.

2. A yarn guide and cleaner comprising a body, centrally-located guide-notches near the opposite ends of the body, and an endwise-adjustable blade secured to the body, one end of which blade is movable toward and from a line drawn through said two guide-notches, an abutment against which the free end of said blade may come in contact to limit the movement of said blade in one direction, substantially as described.

3. A yarn guide and cleaner consisting of a body having guide-notches near each end thereof, an abutment extending more or less across a straight line drawn through said notches, a spring-blade supported on said body at an angle to said straight line, one end of which lies in proximity to said abutment, whereby a narrow slot is provided between said abutment and the end of said blade, through which the yarn passes, substantially as described.

4. A yarn guide and cleaner comprising a body, guide-notches thereon, a yarn-cleaning slot between said notches consisting of one fixed member, one edge of which intercepts a straight line drawn between said notches, and constitutes one edge of said slot, and one movable member consisting of a spring-blade secured to the body by one end and its free end constituting the other edge of said slot, the said free end being movable against the fixed edge of said slot by the contact of the yarn, substantially as described.

5. A yarn guide and cleaner consisting of a body having guide-notches at opposite ends thereof, a cleaning-slot located between said notches, and out of line horizontally therewith and comprising a fixed vertical abutment and a spring-blade, the latter being capable of flexure toward and from said abutment; a boss in front of said slot which is higher than the bottom of one of said guide-slots, whereby the yarn, by means of said cleaning-slot and said boss, may be deflected out of a straight line both horizontally and vertically, in passing through said guide, substantially as described.

6. A yarn guide and cleaner consisting of a body having guide-notches at opposite ends thereof, a boss between said notches having one of its sides in proximity to a line drawn between said notches; a spring-blade oppositely inclined to the direction of movement of the yarn through the guide, secured by one end to said body and having its free end in proximity to said boss; a rib extending lengthwise of said blade to which the latter is secured and which serves as an abutment for the body of the blade when its free end is sprung toward said boss, substantially as described.

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Witnesses:

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