

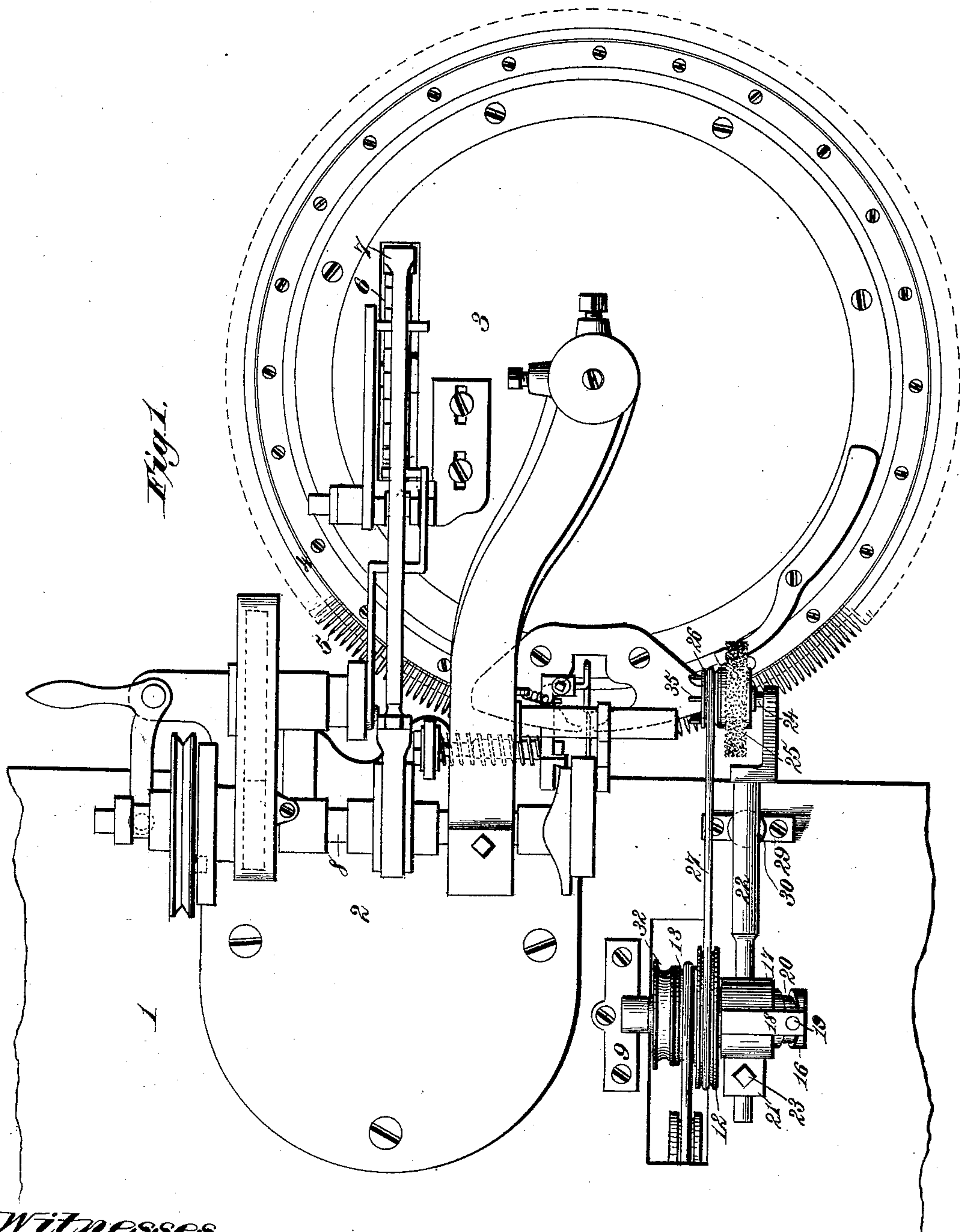
(No Model.)

2 Sheets—Sheet 1.

N. H. BRUCE.  
MACHINE FOR SEWING LOOPED FABRICS.

No. 437,142.

Patented Sept. 23, 1890.



Witnesses.  
*Robert Emmett.*  
*J. A. Rutherford.*

Inventor.  
*Norman H. Bruce.*  
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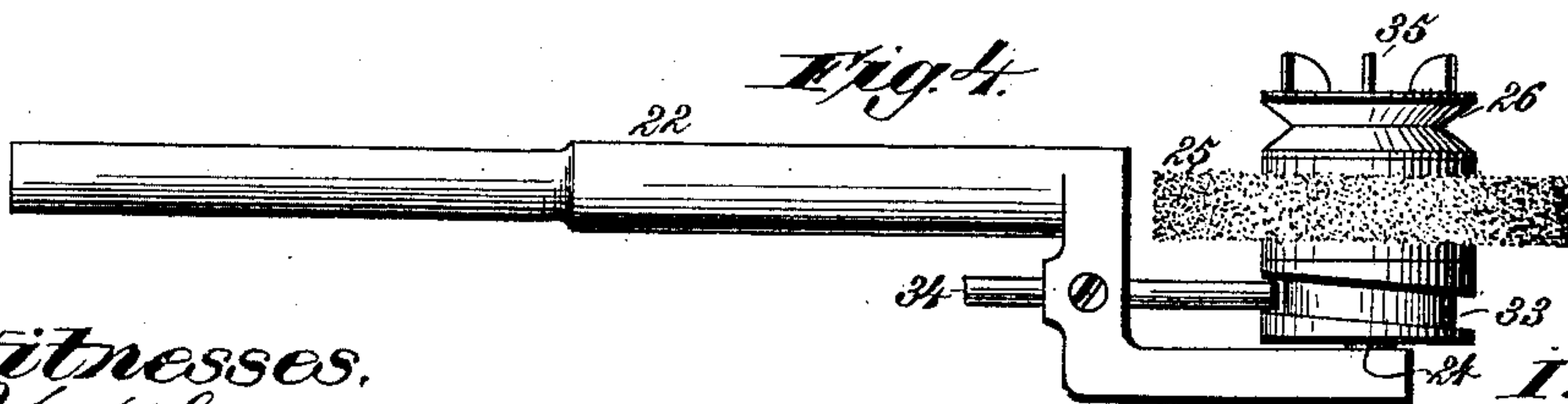
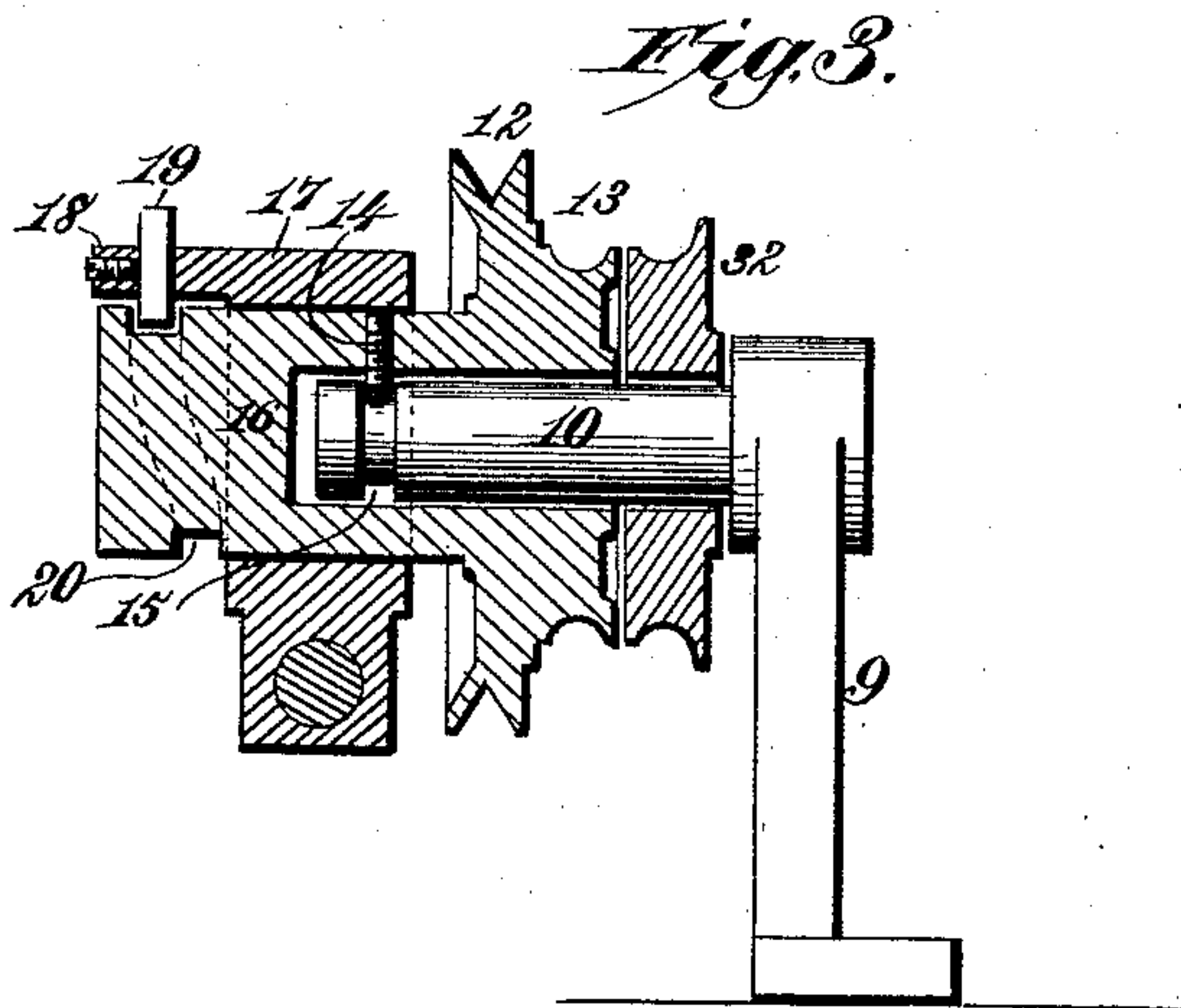
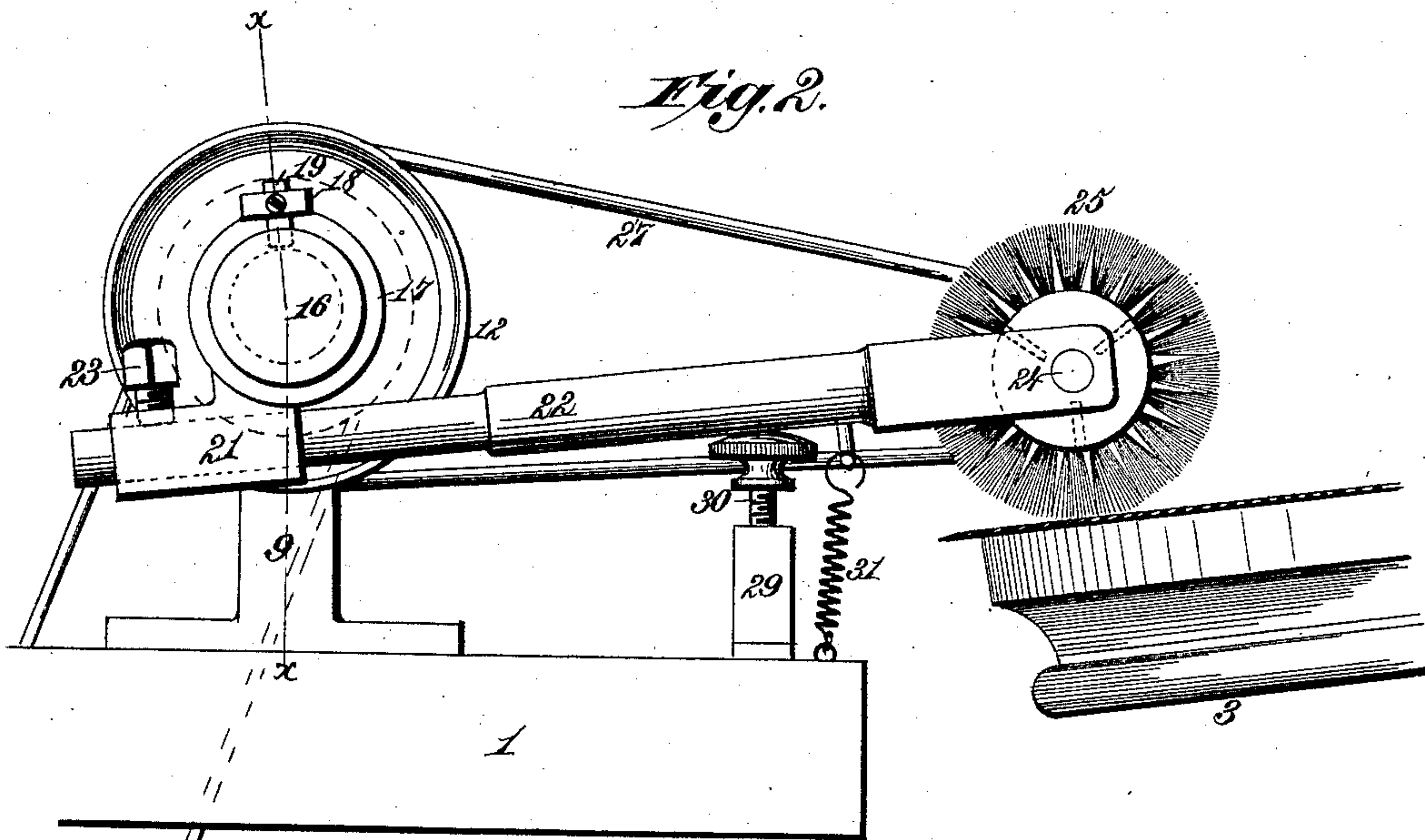
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Robert Everett,  
J. A. Rutherford

Inventor:  
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By James L. Norris  
Atty.



# UNITED STATES PATENT OFFICE.

NORMAN H. BRUCE, OF WATERFORD, NEW YORK.

## MACHINE FOR SEWING LOOPED FABRICS.

SPECIFICATION forming part of Letters Patent No. 437,142, dated September 23, 1890.

Application filed March 1, 1888. Serial No. 265,821. (No model.)

### *To all whom it may concern:*

Be it known that I, NORMAN H. BRUCE, a citizen of the United States, residing at Waterford, in the county of Saratoga and State of New York, have invented new and useful Improvements in Brush Attachments for Turning-Off Machines for Uniting Knit Fabrics, of which the following is a specification.

My invention relates to that class of mechanism known as "cylinder-turning-off machines," used for sewing together the two selvage edges of knitted fabrics or for securing together the cuffs and body portions of undershirts and drawers. In mechanism of this type it is customary to place the loops of the fabric upon the grooved points or hooks of the cylinder, the attachment of the cuff being guided by the slack course formed in the manufacture of the fabric. The sleeve portion of the goods is then impaled upon the points, above which marginal portions of both fabrics project. The projecting edges are then trimmed down either by hand or by automatic mechanism, the cut being made so close to the points that it severs the line of stitches engaging with the loops impaled by the points, leaving the cut ends of the severed stitches still lying in the loops and upon the points. In order to remove these short fragments of the yarn, together with the adherent fuzzy or fibrous matters, it has been customary to apply a brush formed of strong bristles or wires, by the manual operation whereof the desired result was effected. This method, however, not only involves additional time and labor, but the friction of the brush rapidly wears away the brass of the hook or point plate, thereby necessitating its renewal at comparatively frequent intervals and giving rise to considerable annoyance, interruption of work, and expense. The manual application of the brush also, unless made by an expert and faithful employé is very liable to effect an imperfect removal of the waste particles or to remove them from some portions and not from others.

It is my purpose, therefore, to combine with mechanism of the type specified a mechanically-driven and adjustable brush having its supports mounted at any suitable point and acting upon the edges of the fabrics engaged

with the points or hooks of the cylinder before the parts reach the sewing mechanism, and means for holding said brush to its work.

It is my further purpose to give to said brush a rotary movement, in combination with a lateral reciprocation, in the plane of the axis of the brush-shaft, whereby the result sought is more speedily and thoroughly effected.

It is my purpose, also, to so construct and combine the several parts as to render the brush easily and instantly removable from contact with the cylinder to permit ready access to the sewing mechanism or for other purposes.

It is also an object of my invention to combine with a cylinder-turning-off machine and a mechanically-driven brush simple means for imparting to the same an exact and delicate adjustment toward and from the work.

The invention consists in the several novel features of construction and new combinations of parts, hereinafter fully described, and then definitely pointed out in the claims.

In the accompanying drawings, Figure 1 is a plan view of a cylinder-turning-off machine with my invention attached. Fig. 2 is a side elevation taken from the right hand of Fig. 1. Fig. 3 is a vertical section in the plane  $x x$ , Fig. 2. Fig. 4 is a detail view showing a slightly-modified construction.

In the said drawings the reference-numeral 1 designates any suitable supporting frame or stand, upon which is mounted the bed-plate 2 of a turning-off machine, having a cylinder 3, provided with a ring 4, upon which are mounted the hooks or points 5 in the usual manner. An intermittent movement is imparted to the ring by a ratchet 6, with which a pawl 7 has periodical engagement, said pawl being reciprocated by an eccentric on the shaft 8. The sewing mechanism consists of the needle and looper shown in Fig. 1, and having the ordinary construction.

Inasmuch as the turning-off machine forms no portion of my present invention, it will not be further described herein, the construction and operation thereof being well known.

Upon any suitable support in convenient proximity to the cylinder 3, I attach a bracket 9, having a stud-bearing 10. Upon this stud is journaled a double pulley having the sepa-



rate belt-grooves 12 and 13. The hub of this pulley is prolonged beyond the end of the stud and receives a screw 14, which passes into a groove 15 in the end of the bearing to hold the pulley in place.

Upon the extended hub 16 is mounted a sleeve or ring 17, having a lug 18, overhanging the end of the hub and provided with a cam-pin 19, the end of which lies in a cam-race 20, cut in the periphery of the hub, and having such obliquity that at each revolution of the pulley the sleeve 17 will receive a reciprocating movement in a direction parallel with the axis of the stud. Upon the sleeve is formed or mounted a bracket 21, having an opening in which is inserted an arm 22, adjustable within the sleeve and held at any point by a set-screw 23. This arm projects over the ring 4, and upon its extremity is formed a stud 24, upon which is mounted a rotary brush 25, having a pulley 26, which is geared by a belt 27 to the pulley 12 upon the stud 10, the latter being driven by a belt 28, running on the pulley 13 and actuated from the power-shaft or in any other suitable manner.

Beneath the arm 22 I place a post 29, having a female screw, in which is mounted a vertically-adjustable set-screw 30, having a head, upon which the arm 22 rests, and by which the screw may be adjusted. A spring 31, attached to the arm and to the support or table beneath, holds the brush down to its work, and at the same time permits the easy adjustment of the screw 30. A loose pulley 32 may be mounted on the stud 10 to receive the driving-belt when the operation of the brush is not required. The parts being thus constructed and arranged, and the fabrics being in place upon the points and properly trimmed, the mechanism is set in motion. As the intermittently-moving point-ring rotates beneath the brush 25, the latter revolves rapidly against the edges of the fabric looped upon the points, and at the same time receives a rapid horizontal reciprocation in combination with its rotary movement. If properly adjusted by means of the set-screw 30, the revolving brush will speedily and thoroughly remove the particles of thread and other adherent material and leave the edges of the fabrics in a perfectly clean and uniform condition throughout.

I may for the purpose of imparting a horizontal reciprocation to the brush use the construction shown in Fig. 4, in which a cam-race 33 is cut upon a hub formed upon the brush, a cam-pin 34 being mounted upon the arm 22. It should be noted, however, that the combined rotary and reciprocating movement is not an essential feature of my invention, as I may employ a brush having a rotary movement only, although I regard the combined rotary and reciprocating movement as preferable, as it more perfectly removes the severed ends of the thread or yarn and effects a more thorough cleansing of the fabrics.

I have shown the support for the brush

mechanism as mounted upon the same table, supporting the bed-plate of the turning-off machine. The location of the supporting-basket is, however, of no importance, and I may place it upon any support and at any point where the brush may be brought down upon the edges of the fabrics.

When access to the sewing mechanism is needed or when for other reasons it is desirable to remove the brush, the spring 31 is detached and the arm 22 is lifted, the sleeve 17 turning upon the hub 16 of the pulley. The arm may swing through an arc of nearly one hundred and eighty degrees, thereby wholly removing the brush and its support from the vicinity of the turning-off machine. Wings 35 are set upon the vertical face of the pulley on the brush, by the rapid revolution of which a sufficient current of air is produced to carry off the particles removed by the brush.

By this invention I am enabled to build the brush attachments separately as independent mechanism and supply them to the users of the turning-off machines of any known pattern, to which they may be applied without change or alteration of any kind.

My invention, also, is adapted for use with a straight-point plate as well as with a ring.

What I claim is—

1. The combination, with a point-carrying cylinder of a turning-off machine, of a support, an arm mounted on said support and carrying a revolving brush located above the points, said arm being movable at will to adjust the brush to or from the points, means for revolving the brush, and a spring connected with the arm and acting to normally hold the brush down upon the exposed trimmed edges of a fabric on the points, substantially as described.

2. The combination, with a cylinder-turning-off machine, of a continuously-driven brush, an arm carrying said brush at one end and having the other end mounted upon a horizontal axis arranged upon a support adjacent to the cylinder, and a vertically-adjustable support for said arm, substantially as described.

3. The combination, with a cylinder-turning-off machine, of an arm mounted at or near one end on a horizontal axis adjacent to the cylinder, a continuously-driven brush mounted upon the other end, over the cylinder-points, to act upon the trimmed edges of the fabric carried by the latter, a vertically-adjustable set-screw supporting the brush-carrying end of said arm, and a spring holding the latter in contact with the set-screw, substantially as described.

4. The combination, with a cylinder-turning-off machine, of an arm mounted at one end upon a horizontal axis, a brush journaled upon the other end of said arm and having a pulley provided with wings to create an air-current, and means for driving said pulley and brush, substantially as described.



5. The combination, with a cylinder-turning-off machine, of a pulley having an extended hub rotating upon a suitable bearing, a sleeve or ring loose upon the hub and having a pin engaging with a cam-race therein, an arm longitudinally adjustable in a bracket on the sleeve, and a brush mounted on the free end of the arm, substantially as described.
6. The combination, with a cylinder-turning-off machine, of a pulley having an extended hub splined upon a suitable bearing, a sleeve or ring turning upon said hub and having a lug provided with a pin running in a cam-race in said hub, an arm longitudinally adjustable in a bearing on a ring, a rotary brush having a pulley provided with wings on its vertical face, an adjustable support for the arm, and a spring drawing the arm down upon the support, substantially as described.
7. The combination, with a cylinder-turning-off mechanism, of a support adjacent to the cylinder provided with a journal, a revolving hub mounted on the journal and provided with a cam-race, an arm loose at one end on the said hub and having a pin engaging the cam-race, and a rotating brush journaled at the other end of the arm to act upon the trimmed edges of the fabric carried by the cylinder, substantially as described.
- In testimony whereof I affix my signature in presence of two witnesses.
- NORMAN H. BRUCE.
- Witnesses:  
JOS. L. COOMBS,  
J. A. RUTHERFORD.