

No. 770,944.

PATENTED SEPT. 27, 1904.

J. H. TIERNEY.
THREAD CUTTING APPLIANCE.

APPLICATION FILED JAN. 22, 1904.

NO MODEL.

2 SHEETS—SHEET 1.

Fig. 1.

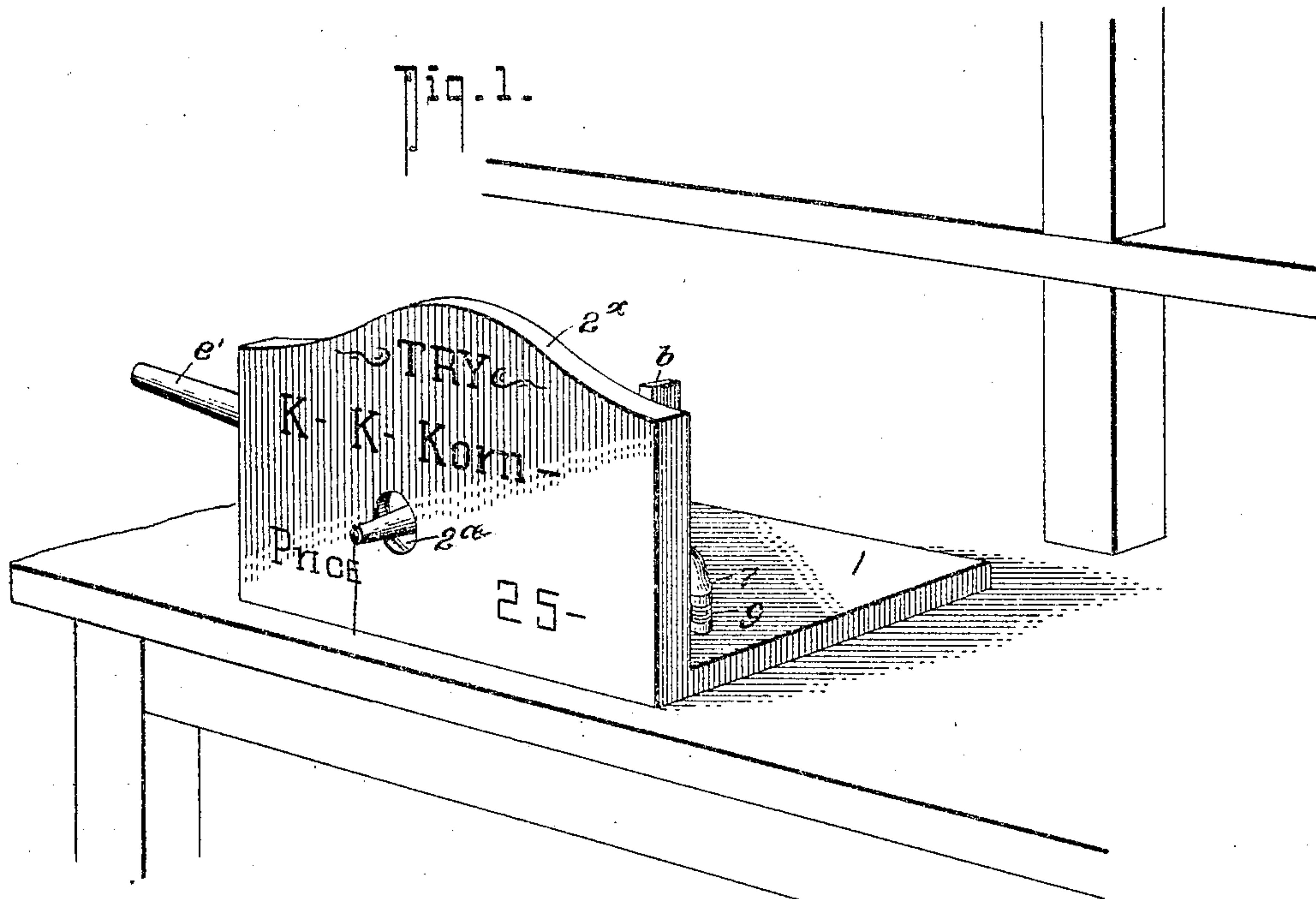
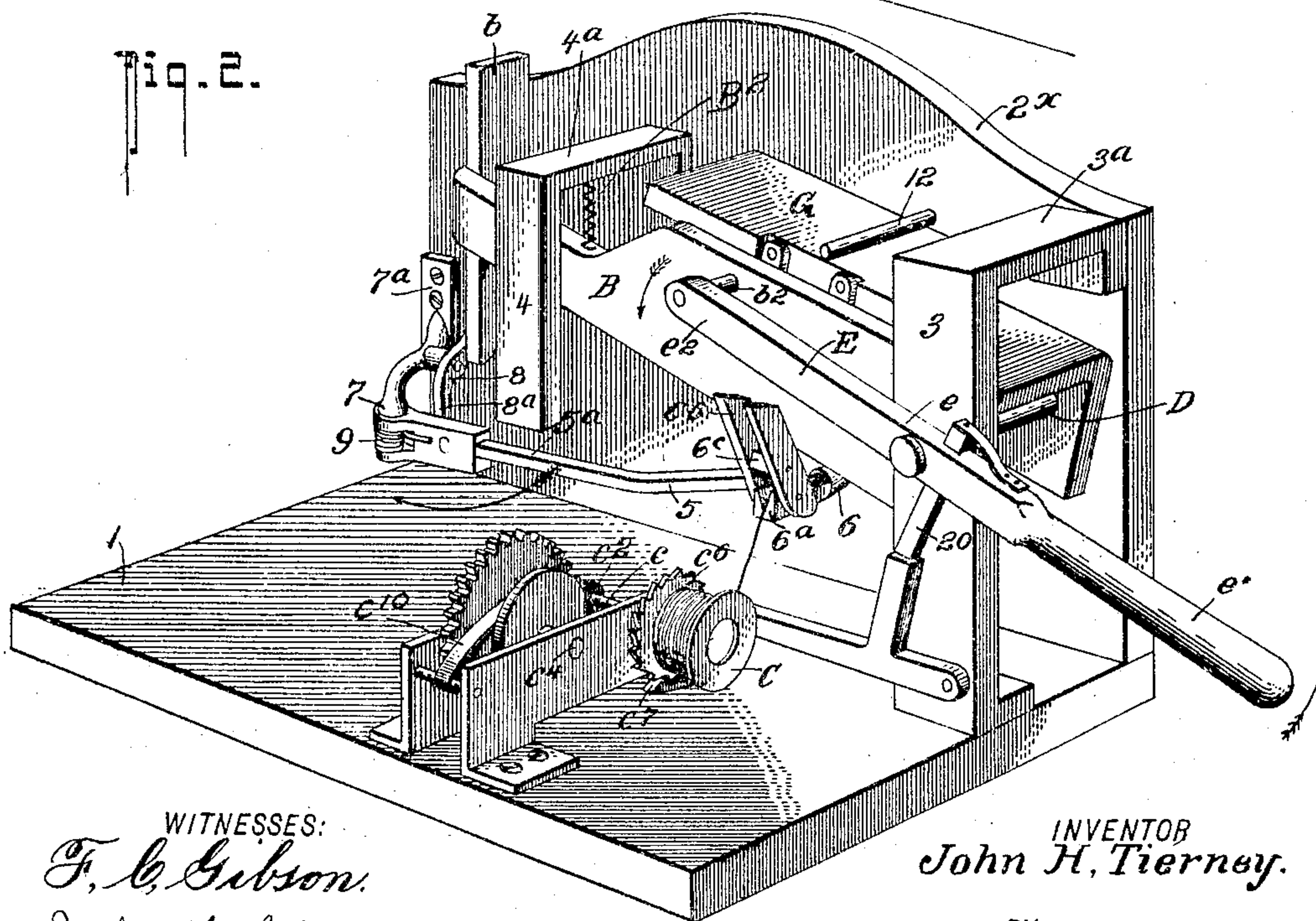


Fig. 2.



WITNESSES:
F. C. Gibson.
John T. Schrott.

INVENTOR
John H. Tierney.

BY
Fred G. Dietrich & Co.
ATTORNEYS

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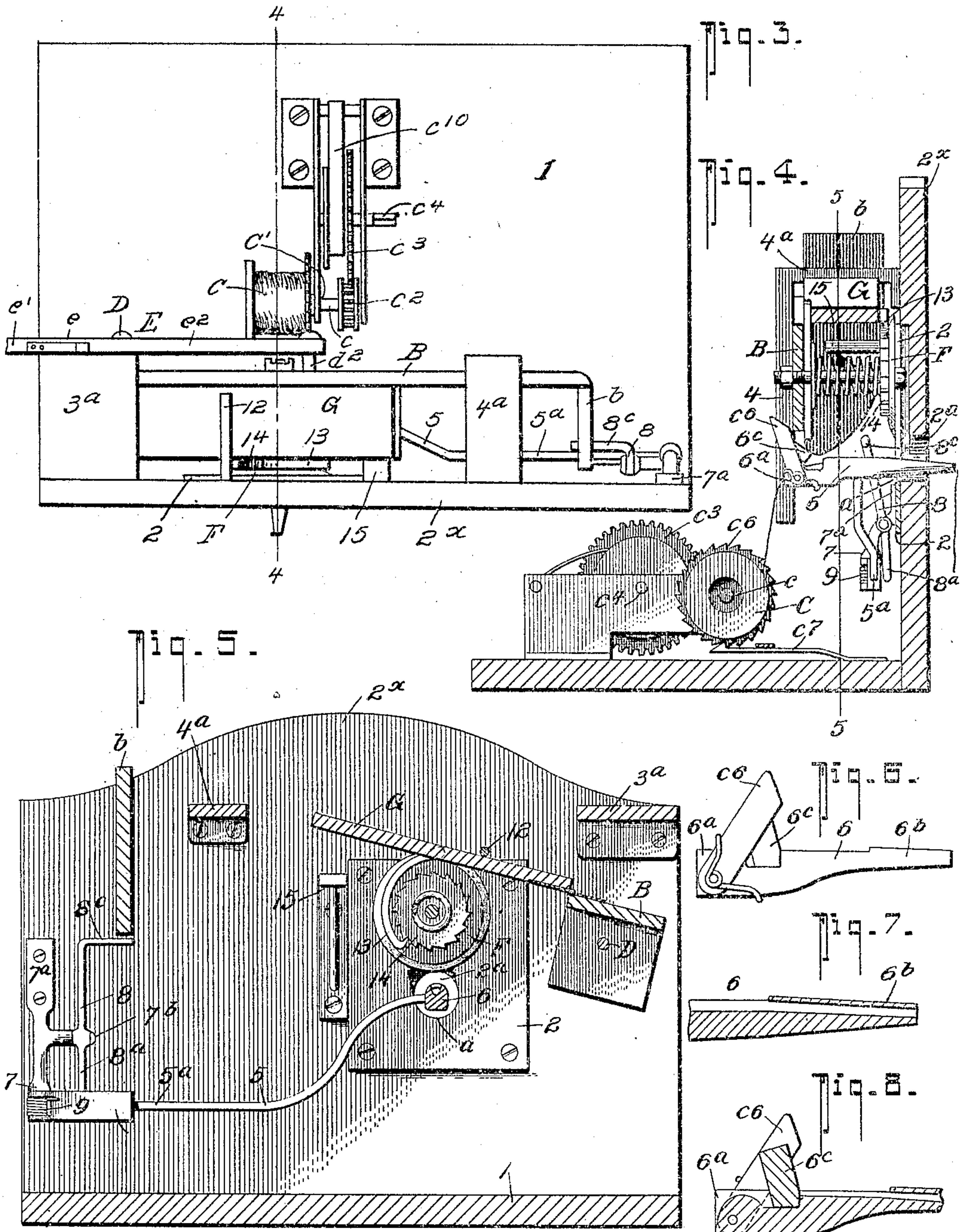
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INVENTOR

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BY

Fred G. Dietrich & Co.
ATTORNEYS

UNITED STATES PATENT OFFICE.

JOHN H. TIERNEY, OF LEWISTON, MAINE.

THREAD-CUTTING APPLIANCE.

SPECIFICATION forming part of Letters Patent No. 770,944, dated September 27, 1904.

Application filed January 22, 1904. Serial No. 190,199. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. TIERNEY, residing at Lewiston, in the county of Androscoggin and State of Maine, have invented a new and Improved Thread-Cutting Appliance, of which the following is a specification.

This invention relates to improvements in that class of thread-cutting devices more especially adapted for store-counters; and it primarily has for its purpose to provide an appliance of the character referred to which can be readily mounted upon a store-counter, easily manipulated, and in which the feed or supply of the thread is so governed that the end thereof is always brought into position to be readily grasped and in which the several parts are also designed to provide for a compact, ornamental, and neat arrangement of thread-cutter which may be readily utilized as a novel advertising media.

My invention comprehends in its generic nature a suitable ornamental stand or casing, a thread-carrier mounted thereon, a hand-actuated means for shifting said carrier whereby to bring the loose end of the thread into position in front of the casing to be readily grasped and into position to be engaged by the cutting devices, and a tension device that automatically operates at predetermined times to take up the slack in the thread to hold it in proper position for cutting, the said hand-actuated means being automatically returnable to its normal position.

My invention also includes an automatically-controlled device for changing the cutter-faces of the thread-severing disk or blade, whereby the same portion of the cutting edge is not in use twice in succession.

In its more subordinate features my invention consists in certain details of construction and peculiar combination of parts, all of which will be hereinafter referred to, specifically pointed out in the appended claims, and illustrated in the accompanying drawings, in which—

Figure 1 is a front perspective view of my improved thread-cutter, showing the same mounted upon a store-counter. Fig. 2 is a rear perspective view of the same. Fig. 3 is a plan view thereof, the parts being shown to

their normal position. Fig. 4 is a transverse section on the line 4 4 of Fig. 3. Fig. 5 is a vertical section, taken on the line 5 5 of Fig. 4. Fig. 6 is a detail view of the thread-carrier and illustrates the clamp for holding the thread when the carrier is thrown back to take up the slack in the thread prior to cutting the same. Figs. 7 and 8 are detail views hereinafter specifically referred to.

In its practical construction my invention comprises a framing or casing of a suitable ornamental shape, which essentially embodies a flat base 1 and a plate 2 on a front piece 2^x, that extends vertically from the base 1 and which can be conveniently utilized as an advertising-surface.

3 designates a bar at the rear of the front piece 2^x and near one end thereof, which is braced to the front piece by a cross-piece 3^a. At the opposite end of the part 2^x and to the rear thereof is a vertical bracket 4, pendent from the cross-piece 4^a, which is made fast to the part 2^x, as shown in Fig. 2. At a point about midway the members 3 and 4 the front piece 2 has an opening 2^a, the lower edge *a* of which is beveled to form a shearing edge for cooperating with the cutter-disk presently referred to. The thread is normally held with its loose end projected beyond the front piece 2^x by means of the horizontally-movable sweep-lever 5, that carries at its front end a combined thread-guide and clamp (see Figs. 2 and 6) and which consists of a finger 6, secured to the end of the lever 5 and disposed at right angles thereto, and the said finger 6 has a guide-heel 6^a at its rear end to receive the thread and is provided at its other end with a funnel-shaped toe or guide 6^b, (see Fig. 8,) which under a normal adjustment of the operating means projects through the opening in the plate 2 to bring the loose end of the thread into position to be grasped, as clearly shown in Fig. 1. At the heel end the member 6 carries a spring-held cam 6^c, (shown in detail in Fig. 6,) that clamps or grips the thread against the member 6, whereby to cause the thread to draw off the reel devices presently referred to as the arm 5 is swung forward to project the guide 6^b through the plate 2, and the said clamp 6^c has a projec-

tion 6^m, which is adapted to engage with the oscillatory frame B, which carries the cutter and the actuating devices therefor and which effects a sweep motion of the arm or lever 5, whereby to trip the said clamp 6^c to release the grip on the thread, so the same can be freely pulled out to the length desired. The cam device 6^c also serves as a means for holding the thread taut when the free end is grasped and pulled upon during the operation of cutting the thread. The arm or lever 5 is pivotally mounted to swing in the horizontal plane, and its end 5^a is secured to the head-piece, which is pivotally secured to the stub-shaft 7, that projects down from the bracket 7^a, mounted upon the rear of the end of the part 2^x. Mounted on a stub-shaft 7^b of the bracket 7^a and arranged to extend in an approximately vertical direction is a rocking arm 8, having a finger 8^a at its lower end to coöperate with the head-piece at the end of the shaft 5, whereby when the arm 8 is rocked in the manner presently explained the head will be swung rearwardly, as indicated by the arrow in Fig. 2, and by reason thereof cause the arm 5 to swing backward and away from the part 2^x. The rocking arm 8 also has a second crank member 8^c, which coacts with a cam-shaped block *b* on the free end of the oscillatory frame B, and the said members 8^c and *b* are so arranged that when the frame B is depressed the shaft 8 will be rocked to swing the arm 5 backward, as stated. The head 5^a, the arm 5, and the arm 8 are held to their normal positions by a suitable spring 9, as shown.

To provide for conveniently drawing out the desired lengths of thread at all times in a proper condition for being cut and for conveniently rewinding the thread upon the thread-carrying reel, I provide a special construction of thread-reel device that coacts with the thread-carrying finger and which is mounted under the head of the said needle or finger 6 when the same is at its normal position. As best shown in Figs. 2, 3, and 4, the reel C is mounted on the shaft *c*, journaled in bearings *c'*, and which has a pinion *c*², that meshes with the gear *c*³ upon a key-wound shaft *c*⁴, to which the actuating-spring *c*¹⁰ is connected, the free end of which spring is made fast to the frame, as shown. The reel C at one side has a ratchet-disk *c*⁶, with which engages a spring-held pawl *c*⁷, which when tripped releases the reel and permits it to wind up the thread. By providing a reel of the character stated it is obvious that as the thread is pulled out through the member 6 by the hand of the operator to the desired length the reel C will permit the thread to be unwound and at the same time will serve to wind up the spring *c*¹⁰, so that as soon as the thread has been emptied from the reel a new thread may be readily wound thereon by simply attaching the end of the thread to the reel and by placing the finger of the op-

erator upon the member 20 and pressing down on the same to release the pawl *c*⁷. This will permit the spring *c*¹⁰ to actuate the reel C to again wind up thread thereon. Furthermore, any slack in the thread may be taken up by the reel due to its automatic action when the member 20 is depressed to release the latch *c*⁷.

The oscillatory frame B, before referred to, is mounted to swing vertically in a plane parallel with the part 2^x, and the said frame B is fulcrumed at its rear end on the stub-axle D, mounted on the front part 2^x and the post 3. The said frame B is normally returned to its elevated position by a stout spring B², which connects with the frame and with the member 4^a, as clearly shown in Fig. 2 of the drawings. The frame B is oscillated by means of a lever E, fulcrumed at *e* and projected over the post 3, and the outer end of the said lever is arranged to form a handle *e'*, while the opposite end, *e*², pivotally engages a lateral stud *b*², projected from the frame B. It will be obvious that by lifting the handle *e'* in the direction indicated by the arrow in Fig. 2 the frame B will be thereby forced downward in the direction indicated by the arrow, and in such movement the cam-block at the free end of the said frame B engages the arm 8 and actuates it in a manner to cause the arm 5 to sweep backward, and thereby carry the thread across the cutting edge of the opening in the front plate 2, it being understood that the end of the thread is held in the right hand, while the lever is operated with the left hand. The downward motion of the frame B brings the cutting-disk F, that is mounted upon a stub-axle that projects laterally and forward from the frame B, (see Fig. 4,) which disk has a shearing edge that moves close against the rear face of the plate 2 and coacts with the shearing edge *a* of the said plate, it being understood that when the frame B is moved down the disk moves over the opening and serves, in connection with the edge *a* of the plate 2, to sever the thread, it also being understood that the thread is cut when the arm 5 is at its rearward movable position, and when in the said position the cam-grip 6^c firmly holds the thread from becoming disengaged from the needle or finger 6. When the frame B is automatically returned to its normal position, an arm G, pivotally mounted on the upper face thereof, engages with the stop member 12, which forces the said arm G downward and in so doing causes its pawl 13 to slip over one tooth of the ratchet-disk 14, mounted on the cutter-disk to rotate therewith, and the pawl 13, that engages it, together with the member G, that supports the pawl, are cor-relatively so arranged that when the frame B is forced downward the member G engages a stop 15, and by reason thereof the frame B continues in its downward movement, and the ratchet, together with the cutter-disk secured thereto, is rotated to a degree of one tooth,

thereby changing the cutting edge of the disk, it being understood that after each operation of cutting the thread the cutter-disk is, by the means stated, rotated so that at no time is the same cutting edge of the disk used twice in succession.

Having thus described my invention, it is believed the complete construction and manner of operation will be readily understood. By having the loose end of the thread projected to the front end of the part 2^x the operator can conveniently grip the said loose end with the right hand and unreel as much of the thread as he may desire, the reel being prevented from rewinding the thread by the pawl *c*⁷. Should he withdraw too much thread, it is only necessary to drop the pawl *c*⁷ by tripping the spring-retained plunger-piece 20, mounted on the handle *e*⁷, (see Fig. 2,) when the pawl *c*⁷ will be released and the reel permitted to wind up the slack thread. After the desired amount of thread is drawn out the operator by raising the handle *e*⁷ in the direction indicated the downward movement of the frame B causes the arm 5 to swing back, with its funnel, in the direction of the said frame B, after which the cutter will sever the thread, it being understood that the thread is held from slipping out of the handle or funnel by the cam-grip 6^c, hereinbefore referred to.

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

1. A thread-cutter of the character described, comprising a suitable frame having an opening through which the loose end of the thread is projected, a thread-holder, an arm that engages the free end of the thread, a lever-actuated means for swinging the arm to convey the free end of the thread through the opening in the frame, and a cutting mechanism actuated by the movement of the said lever for severing the thread, as set forth.

2. A thread-cutter comprising a suitable frame including a face-plate having an aperture, a thread-holding reel, an oscillatory arm, a needle carried by the arm through which the free end of the thread is passed, a clamp on the needle for gripping the thread, a cutting means adjacent the face-plate, and a hand-actuated lever mechanism adapted, when manipulated, to swing the needle-carrying arm in the direction of the face-plate to project its needle through the opening in the said plate, and a connection between the said lever and the cutting mechanism whereby to set in operation the cutter device when the said lever is actuated, as set forth.

3. A thread-cutter of the character described, which comprises a suitable supporting-frame having a vertically-disposed face-plate provided with an aperture, a reel, an arm, a needle on the said arm that carries the loose end of the thread, means for automatically swinging the said arm to project its needle

end through the said aperture, a lever mechanism adapted when actuated in one direction to swing the needle-carrying arm with its needle end away from the said aperture, a cutting device for severing the thread coöperatively connected with the lever mechanism, and adapted to be actuated when the said lever mechanism is depressed, the said oscillatory arm with the thread-carrying needle being arranged to return to its normal position with its needle projected through the aperture in the face-plate when the aforesaid lever mechanism is returned to its normal position.

4. In a thread-cutting appliance of the character described, the combination with a suitable supporting-frame, a vertically-disposed face-plate having an aperture, a thread-reel, an oscillatory arm, a needle on the free end thereof that carries the free end of the thread, means for automatically swinging the said arm to project its needle end through the aperture in the face-plate, a lever-actuated frame, a cutter-disk mounted thereon, and connections between the frame and the needle-carrying arm, so mounted that when the lever is depressed the needle-carrying arm is first swung away from the aperture in the face-plate and the cutter-disk then moved in the direction of the thread, as set forth.

5. A thread-cutter of the character stated, which comprises in combination, a suitable supporting-frame, a vertically-disposed face-plate secured thereto, having an opening, a thread-reel, a horizontally-oscillating arm, a needle at the outer end thereof with which the free end of the thread engages, means for automatically swinging the said arm to project the needle with the loose end of the thread through the opening in the face-plate, a cutter-disk movable over the opening in the face-plate, a supporting member for the cutter-disk pivotally mounted to swing in the vertical plane over the rear of the face-plate, said supporting member being automatically moved in its upward direction, a lever for swinging the said frame downward to bring the cutting-disk past the opening in the face-plate whereby to cut the thread, means controlled by the downward movement of the said pivoted frame for swinging the needle-carrying arm back away from the face-plate, a cam-lock on the needle for gripping the thread adapted to be released by engaging the pivoted frame when the said frame is elevated and the needle-carrying arm is automatically adjusted to project the needle through the opening in the face-plate, as set forth.

6. In a thread-cutting appliance of the character stated, the combination with a frame including a face-plate having an opening, the reel, the oscillating arm and needle mounted on the end thereof with which the loose end of the thread engages; of a cutting mechanism which includes a rotary cutting-disk and a supporting-frame therefor, the latter frame

being pivotally mounted to swing vertically to bring the cutting-disk over the inner side of the opening in the face-plate, said pivoted frame including a member adapted to engage
5 the needle-carrying arm, to swing the said arm outward away from the aperture in the face-plate when the pivoted frame is depressed, and mechanism automatically set in operation by the return movement of the pivoted frame for
10 intermittently rotating the cutter-disk, for the purposes specified.

7. A thread-cutter of the character described, the combination with a frame including a face-plate provided with an aperture, the
15 horizontally-movable swinging arm 5, a needle secured to the free end of the said arm with which the free end of the thread engages, means for automatically moving the said arm to project the needle through the aperture in the face-
20 plate, and a lever-controlled means for shifting the needle-carrying arm to its rearmost position, a thread-carrying reel, a spring-actuated gear mechanism for rotating the said reel in one direction to wind up the thread, a
25 detent for holding the reel from motion, and a trip device for releasing the said detent for the purposes specified.

8. In a thread-cutting appliance of the character described, the combination with a frame,
30 a horizontally-swingable needle-carrying arm, the needle mounted on the end thereof, a spring-clamp connected with the needle for gripping the thread which is automatically released when the needle is projected through
35 the aperture in the face-plate, a thread-carry-

ing reel, a spring-actuated gear connected to the reel for rotating it in a direction to wind up the thread, a detent for holding the said reel from rotation, a lever-actuated pivoted frame, a cutter carried by the said frame, and
40 a trip device coöperatively joined with the said frame, said trip device being arranged to release the reel-holding detent to wind up the thread, and a means controlled by the downward movement of the pivoted frame for mov-
45 ing the needle-carrying frame rearwardly, substantially as shown and described.

9. In a thread-cutting appliance of the character described, the combination with the main frame, the face-plate having an aperture, the
50 horizontally-swingable needle-carrying arm 5, the needle mounted on the outer end thereof, automatically-operated means for swinging the said arm to project the needle through the aperture in the face-plate, a thread-carry-
55 ing reel, a clamp on the needle for gripping the free end of the thread, a frame pivoted at the rear of the face-plate to swing in a vertical plane, a cutter-disk rotatably mounted on the said frame and adapted to be moved over
60 the opening in the face-plate, and a pawl-and-ratchet mechanism for turning the said rotatable cutter-disk which is set into operation on the return movement of the pivoted frame,
65 all being arranged substantially as shown and for the purposes described.

JOHN H. TIERNEY.

Witnesses:

JERRY F. O'NEIL,
JOHN FINAN.