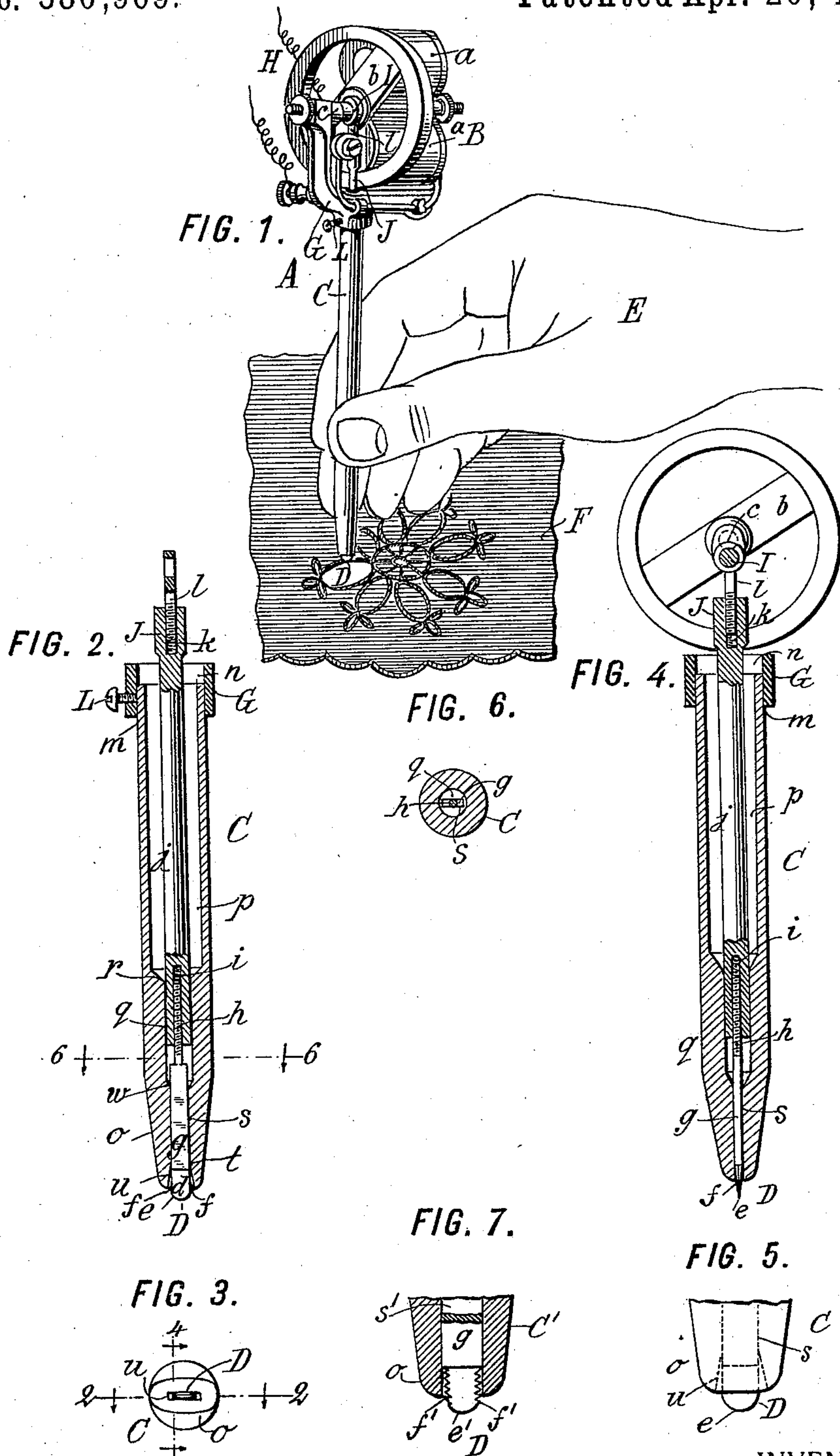


(No Model.)

C. W. COHN.
CLOTH CUTTING TOOL.

No. 580,969.

Patented Apr. 20, 1897.



WITNESSES:

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UNITED STATES PATENT OFFICE.

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CLOTH-CUTTING TOOL.

SPECIFICATION forming part of Letters Patent No. 580,969, dated April 20, 1897.

Application filed December 7, 1896. Serial No. 614,694. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. COHN, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Tools for Cutting Holes in Fabrics and for other Purposes, of which the following is a specification.

This invention relates to cutting-tools, and is especially applicable to tools for cutting holes in fabrics or other articles in the form of thin sheets.

In manufacturing ornamental articles—such as doilies, table-covers, and other articles—it is common to employ a ground fabric, as an imperforate linen sheet, for example, to sew or form upon this a fanciful design in braid, thread, or cord, in loops and scrollwork, and then to cut out portions of the foundation-sheet which are inclosed within certain of these ornamental figures to produce an open-work or lace-like effect. The portions to be cut out have heretofore been removed by means of scissors, the operator endeavoring to follow as closely as possible the irregular lines of the scrollwork without cutting into or injuring the latter. It has been necessary to first insert the point of the shears in the part to be cut to make a starting-hole and then trim around the edges with great care. Much time and skill are required to so cut such articles, making them very expensive of manufacture, and the resulting holes are necessarily so irregular and imperfect in their tracing of the outline of the scrollwork that the imperfections of cutting are readily noticeable.

My invention aims to provide means applicable for cutting such articles, as well as for analogous uses, by means of which mechanical power can be employed for effecting the cutting, and the holes can be readily, smoothly, and accurately cut by the operator, who will merely have to guide the cutter as the pattern requires.

To this end in carrying out my invention I provide an improved cutting-tool comprising a tubular handle, a reciprocating blade therein, means for reciprocating the blade, means for guiding and means for adjusting it, and improvements in the blade and handle adapting them to the work to be performed.

In the accompanying drawings, which illustrate my invention, Figure 1 is a perspective view of the preferred form of my improved cutter in operation for cutting a hole in a piece of ornamented fabric. Fig. 2 is an enlarged fragmentary sectional view, partly in elevation, cut on the line 2 2 in Fig. 3 and looking in the direction of the arrow. Fig. 3 is an end elevation of the tool shown in Fig. 2. Fig. 4 is a view corresponding to Fig. 2, cut on the line 4 4 of Fig. 3 and looking in the direction of the arrow. Fig. 5 is an enlarged fragmentary side elevation of the lower end of the tool. Fig. 6 is a cross-section on the line 6 6 of Fig. 2, looking in the direction of the arrow. Fig. 7 is an enlarged fragmentary side elevation of a modified form of tool.

Referring to the drawings, let A designate the tool as a whole; B, the driving mechanism therefor; C, the handle thereof; D, the cutter or blade; E, the hand of the user, and F the fabric being cut.

The tool may be of any suitable construction which can be moved over the article to be cut, and has a reciprocating blade, a suitable handle, and proper driving mechanism so united and mounted that the user can hold and operate the tool while watching the cutting operation. In the construction shown the blade D is carried within the handle C, a frame G is carried at the top of the handle, and an electromotor B is used as the driving mechanism, this motor being fed by conductors H, and comprising magnets *a*, operating a fly-wheel armature *b*, which revolves on a shaft *c*, having a crank or eccentric I, to which is connected a connecting-rod J, carrying at its end the blade D.

According to the preferred form of my invention the blade D has a wide flat cutting end *d*, having a semicircular or tapering edge *e* crossing its end diametrically, the curve or taper of which extends from one side to the other side of the blade and at each side joins an upright or vertical side cutting edge *f* thereon. Above its cutting end the blade is best formed of a flat body *g*, rectangular in cross-section and having on its upper end a screw-threaded shank *h*, which is adjustably screwed into a screw-threaded socket *i* in the rod J, which at its outer end has a screw-threaded socket

5 k , adjustably engaging the screw-threaded
 end of an eye-coupling l , which passes over
 the crank I . The handle C has a smooth up-
 per end m , which fits adjustably into an in-
 10 ternal smooth socket n in the frame G and is
 clamped therein by a set-screw or other suit-
 able clamp L to hold it at the desired adjust-
 ment. From this point the handle extends
 15 downwardly, with any suitable external con-
 tour for grasping purposes, and at its lower
 end it has a tapering smooth bearing portion
 o , which is of oblong or elliptical cross-sec-
 tion at its end to correspond with the direc-
 20 tion of the cutting edge and the long axis of
 the blade-socket, thus serving as means indi-
 cating on the handle the direction of the cut-
 ting edge, as shown in Fig. 3, being rounded
 25 off from its inclining side walls to its end in
 gradual curves on all sides, so that it can be
 freely pushed in any direction over fabric
 or any other rough surface. Internally the
 handle is formed with a large socket p , ex-
 tending from its upper end well toward its
 30 lower end, beyond which is a smaller cylin-
 drical socket q , united with the socket p by
 beveled walls r , which socket q meets a small
 socket s of oblong rectangular cross-section
 corresponding to the cross-section of the body
 35 g of the blade, which socket extends through
 the handle to the lower end thereof, with par-
 allel flat side walls and parallel narrow side
 walls, the latter terminating at a point t , from
 which the narrow sides of the socket are
 40 made up of outwardly-flaring walls u , which
 begin at the point of uppermost movement of
 the cutting edges of the blade and are flared
 sufficiently to avoid danger of contact of this
 edge with them. The sockets s and q are
 45 united by beveled walls w .

50 When the blade and its connecting-rod J
 have been properly adjusted, they are inserted
 into the end of the handle until the body of
 the blade is seated in the socket s and the
 cylindrical and reduced end j of the rod J is
 55 seated in the socket q , the coupling l having
 first been connected to the crank I . The
 passing of the blade into the handle is facili-
 tated by the tapering walls r and w . The
 handle is then passed into the socket n in the
 60 frame G until the desired adjustment is ob-
 tained, preferably until the edge of the blade
 does not protrude when the crank is in the
 uppermost position, and then the handle is
 set relatively to the frame by the clamp L .
 65 Thereupon rotation of the crank will recip-
 rocate the blade out of and into the handle to
 the extent of the throw of the crank. Should
 this throw be greater than desired, the handle
 can be adjusted outwardly to leave a greater
 60 portion of the throw of the blade within the
 handle, or the connection through the rod J
 can be shortened or lengthened to vary the
 stroke. The flat body and flat side socket s
 will prevent accidental turning or twisting of
 65 the blade and hold it non-rotative. This
 socket will guide the blade exactly and the
 socket q will guide the end of the rod J , so

that between the rod and blade there will be
 no spring, all the distortion due to the crank
 motion being taken up in the rod above the
 70 socket q and in the socket p . For this pur-
 pose the end of the rod at j is made cylin-
 drical and a snug fit with the socket q .

The tapered or rounded bottom edge of the
 knife and the keen sharp side edges thereof
 75 will permit its feed over the surface to be
 cut without danger of catching and permit
 the continuous cutting operation. Its recip-
 rocation will be suited in rapidity to the work
 to be performed. The cutting strain on the
 80 progressing edge will not dull the opposite
 edge, by reason of the guidance of its body
 g in the socket s and the flaring walls of the
 end socket u .

In operation the article to be cut will be
 85 laid or fastened upon a suitable surface and
 the user will then trace along the edges of
 the upturned ornamentation or braid, cutting
 the portions to be removed from within the
 latter and watching the blade as the cutting
 90 progresses. The blade can be pushed either
 edge first and worked with facility into and
 out of corners and along all irregular curves.

It will be seen that my invention provides
 improved means for cutting holes in fabrics
 95 and for other purposes, and it will be under-
 stood that the invention is not limited to the
 particular details of construction and ar-
 rangement set forth as constituting its pre-
 ferred form, but that it can be availed of ac-
 100 cording to such modifications as circum-
 stances or the judgment of those skilled in the
 art may dictate and for any desired uses.

The construction shown in Fig. 7 shows a
 modified cutting edge on the blade, the lower
 105 end e' being curved and the side edges f' be-
 ing toothed or serrated, so that the blade will
 have a saw effect, and these edges being ta-
 pered away from the walls of the socket in the
 handle C' , so that contact with the latter will
 110 be avoided.

What I claim is, in tools for cutting holes
 in fabrics and for like purposes, the following-
 defined novel features and combinations, sub-
 115 stantially as hereinbefore set forth, namely:

1. The improved tool for cutting holes in
 fabrics and the like, comprising a tubular
 handle having a wide, smooth lower bearing
 end for sliding over the fabric, a reciprocating
 blade therein having a cutting edge cross-
 120 ing its end diametrically, and alternately
 moving within, and projecting beyond, the
 bearing end of said handle, and means recip-
 rocating said blade, whereby the handle can
 be held by the hand and the tool moved over
 125 the fabric with its working end in contact
 with the surface thereof, for severing the fab-
 ric as the blade reciprocates.

2. The improved tool for cutting holes in
 fabrics and for like uses, comprising a tubu-
 130 lar handle having a smooth outer bearing end
 for resting on and sliding over the fabric, and
 having an internal blade-socket having flat
 walls, in combination with a flat-sided blade

fitting said socket, having cutting edges at its sides and across its end, and alternately moving entirely into, and partly out of, said socket, and means carried by the other end of said handle reciprocating such blade in the socket of said handle.

3. The improved tool for cutting holes in fabrics and the like, comprising a reciprocating flat-sided cutting-blade, in combination with a tubular handle inclosing such blade, means reciprocating the latter connected to such handle, such handle having a reduced end at the cutting end of said blade of oblong cross-section having rounded edges extending from its sides to its end, substantially as and for the purpose set forth.

4. The improved tool for cutting holes in fabrics and the like, comprising a frame G, in combination with a handle C having internal sockets *p q* and *s*, a blade D in the latter socket, a rod J connected to said blade with-

in said socket *q*, means for reciprocating said blade, and a crank connection between such means and said rod, substantially as and for the purpose set forth.

5. The improved tool for cutting holes in fabrics and for like purposes, consisting of a tubular handle having a socket *s* of oblong cross-section, in combination with a flat-sided blade D reciprocating in said socket, and having a shank *h*, a connecting-rod J adjustably secured to said shank and reciprocating in said handle, and means connected to said handle and said rod for reciprocating the latter.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

CHARLES W. COHN.

Witnesses:

GEORGE W. FRASER,
THOMAS F. WALLACE.