

No. 652,166.

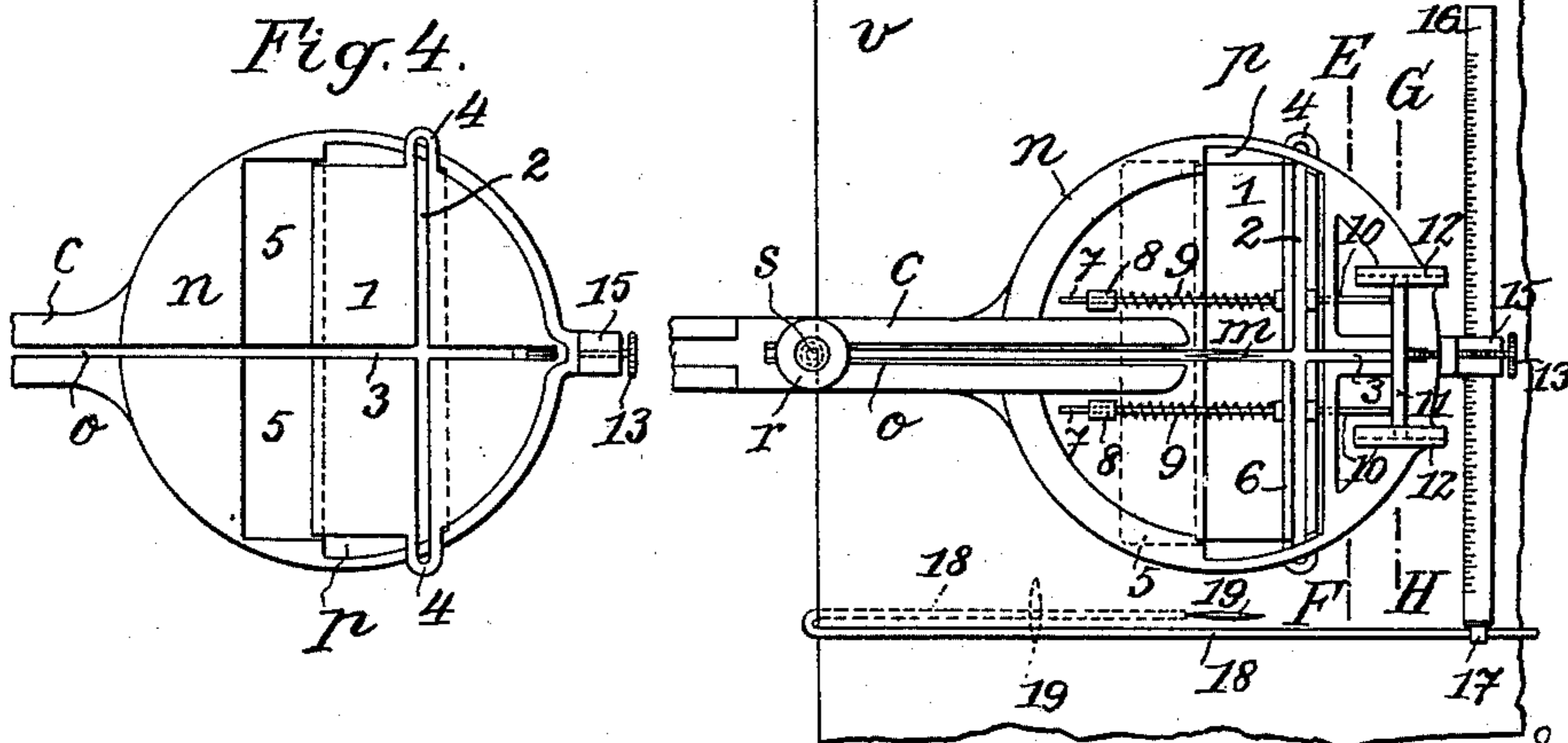
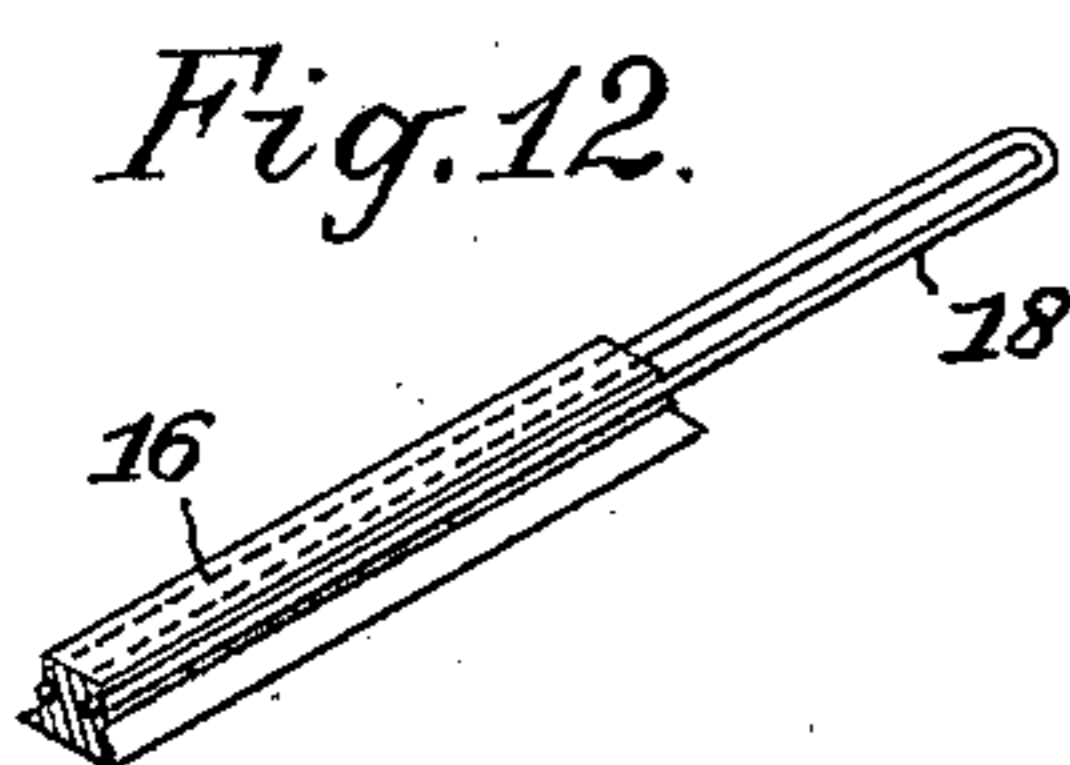
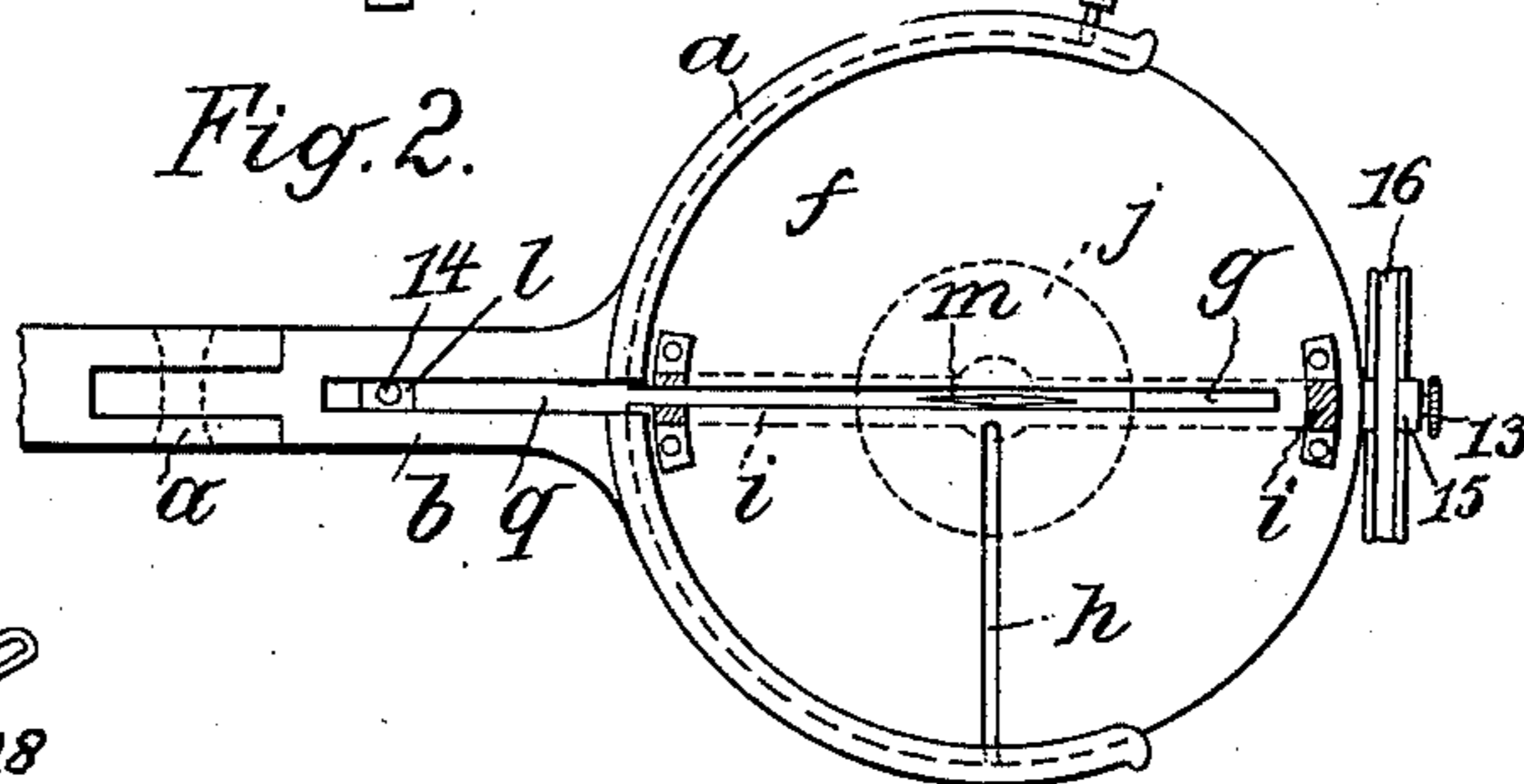
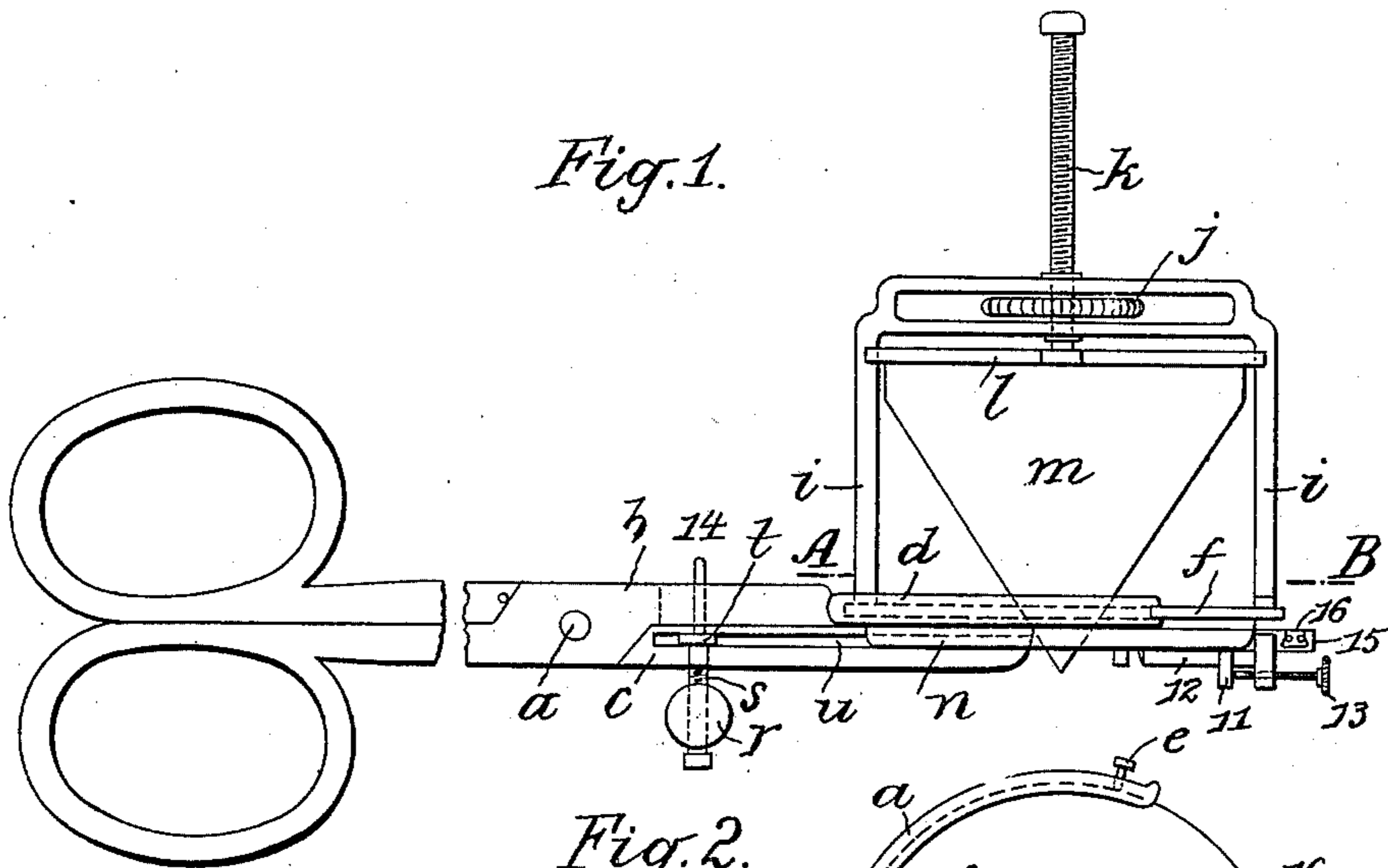
Patented June 19, 1900.

L. CHYBCZYNSKI.
BUTTONHOLE SCISSORS.

(Application filed Oct. 25, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses:
Attest:
W. Sommers

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by Henry M. Day

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2 Sheets—Sheet 2.

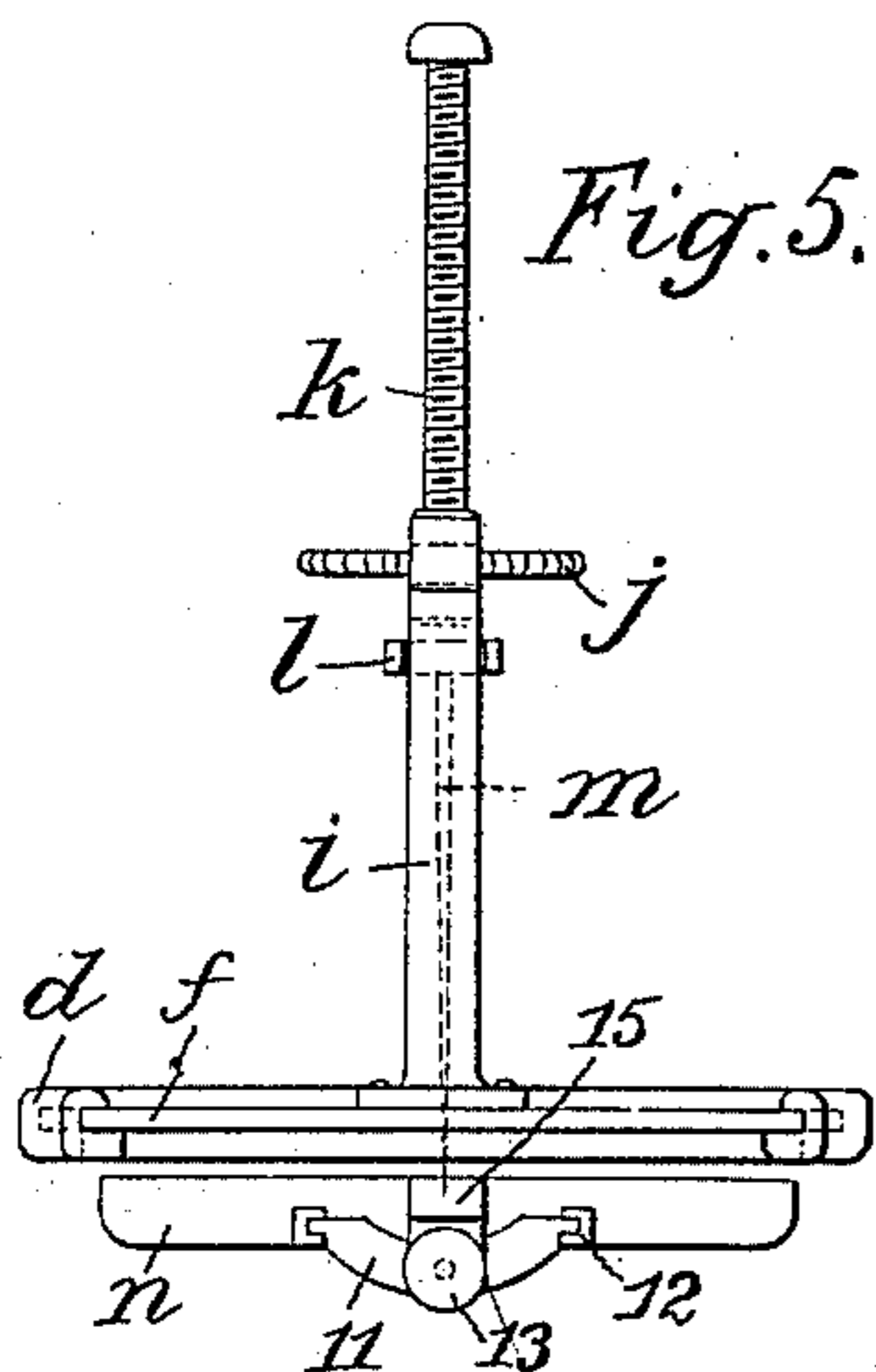


Fig. 5.

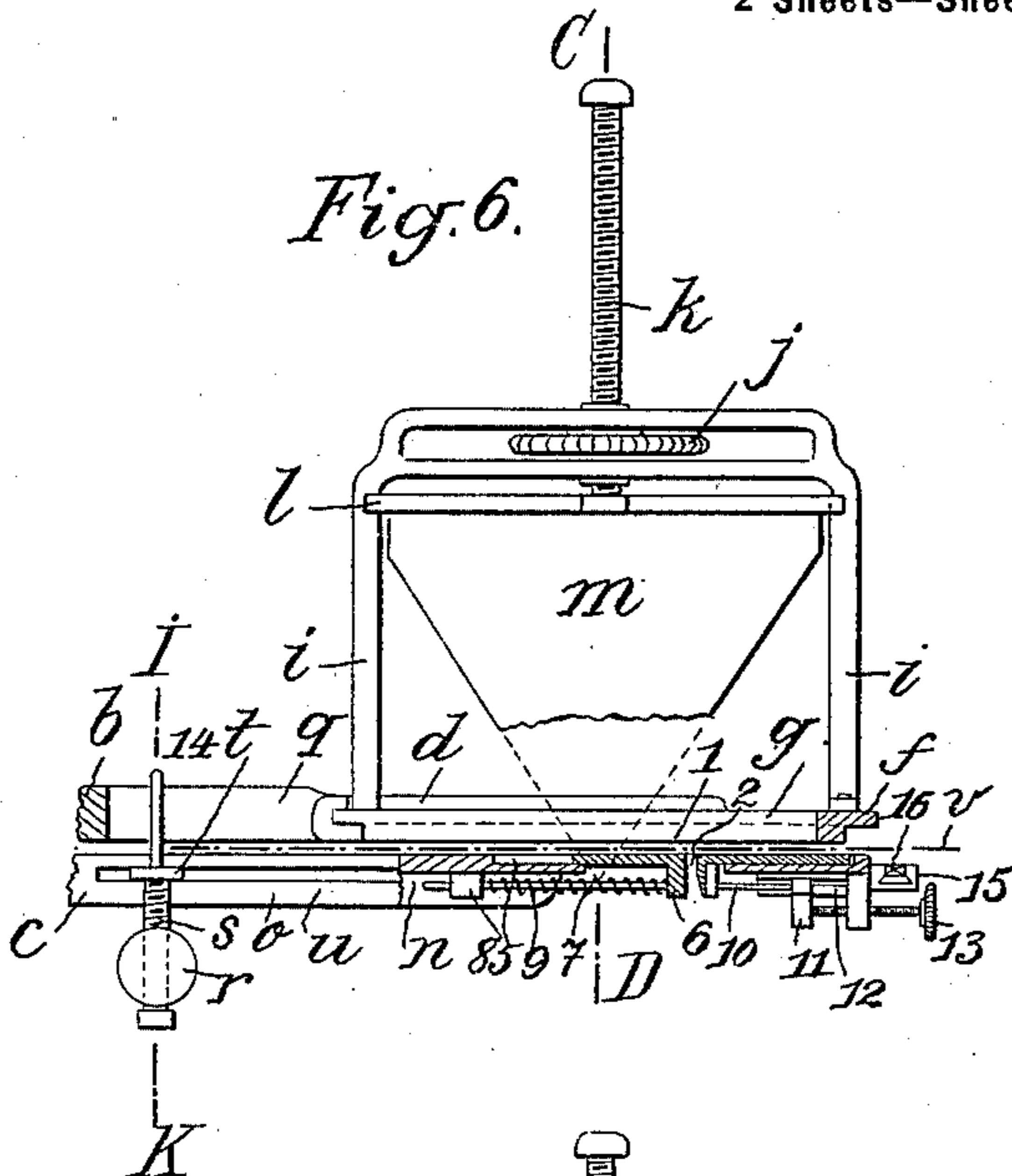


Fig. 6.

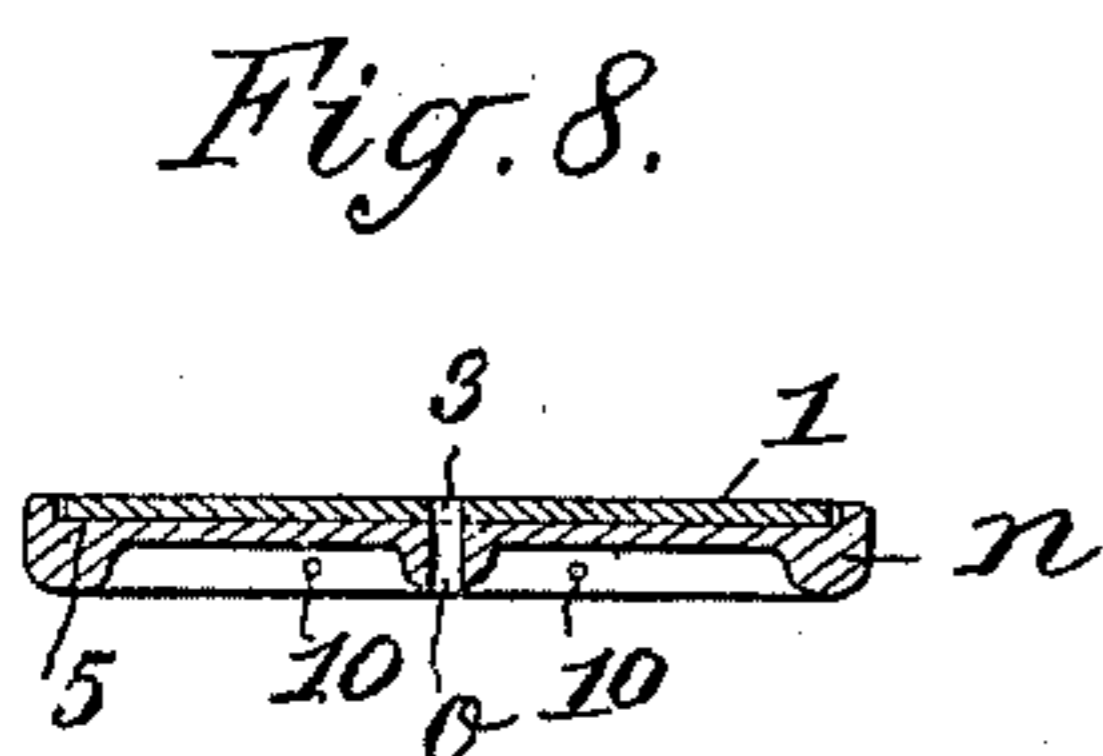


Fig. 8.

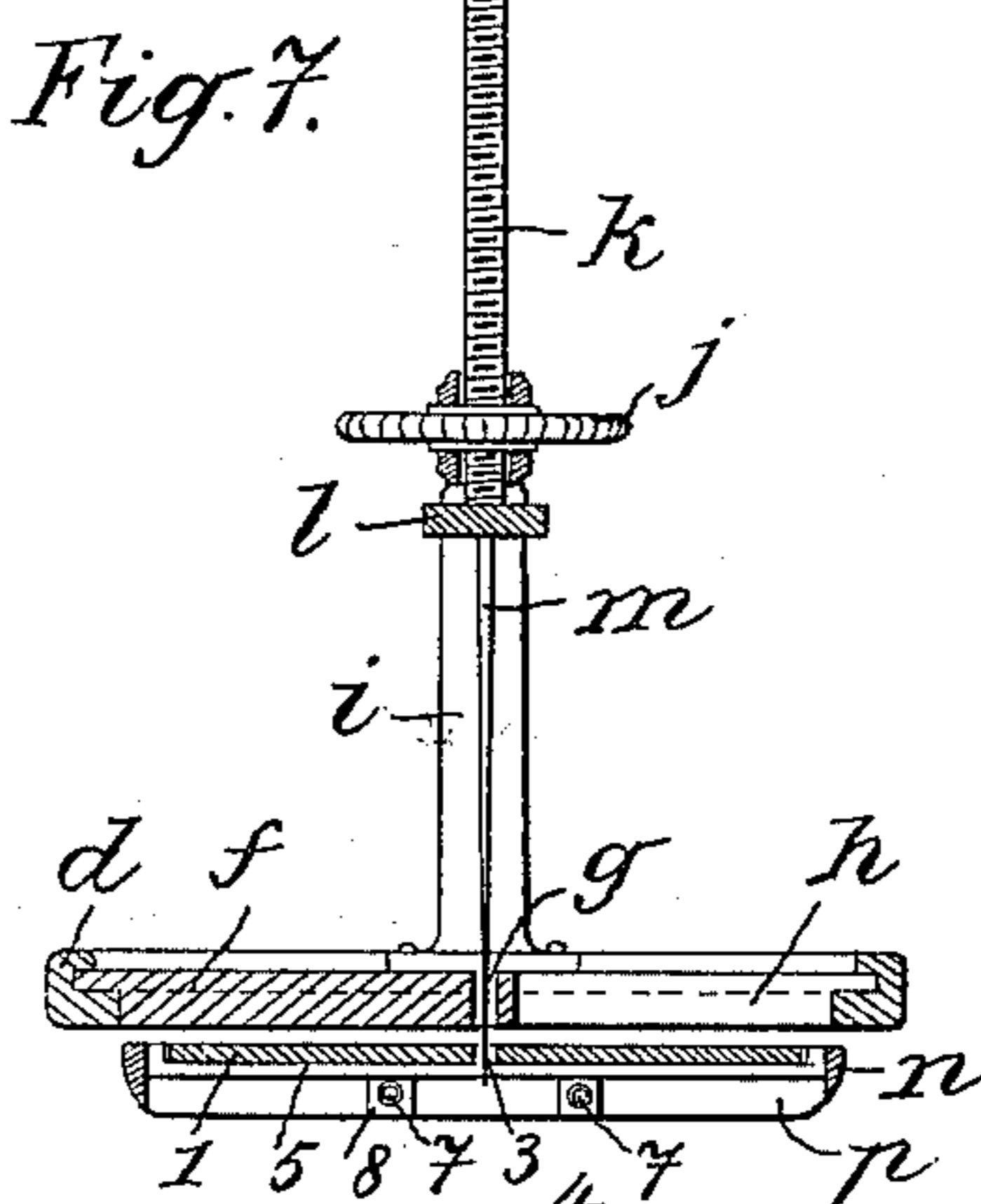


Fig. 7.

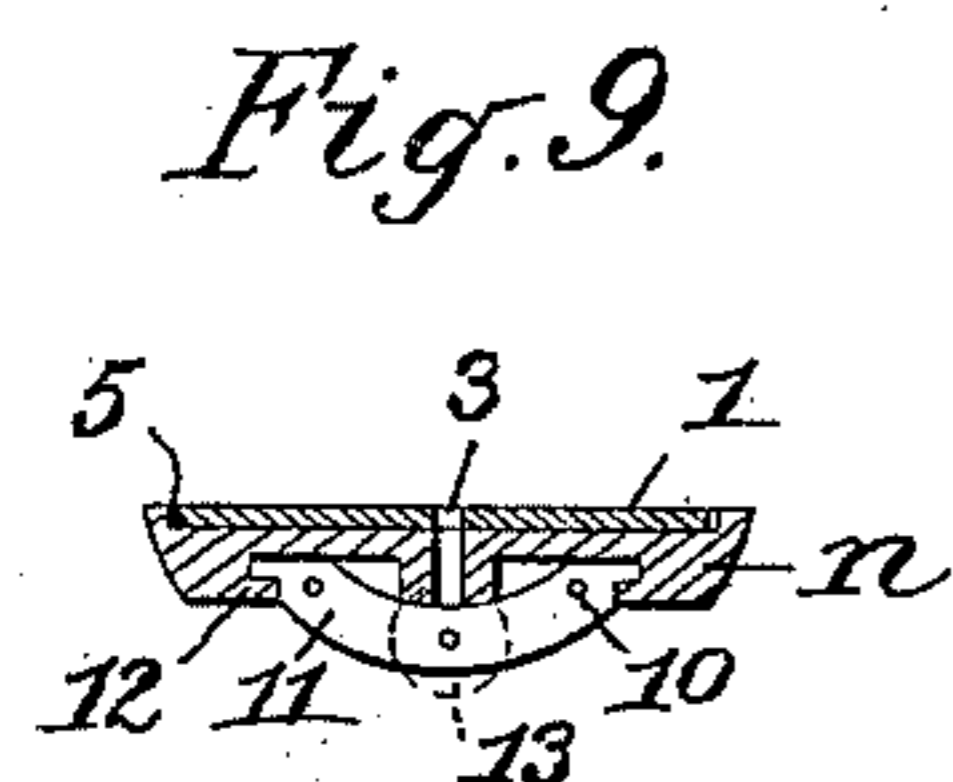


Fig. 9.

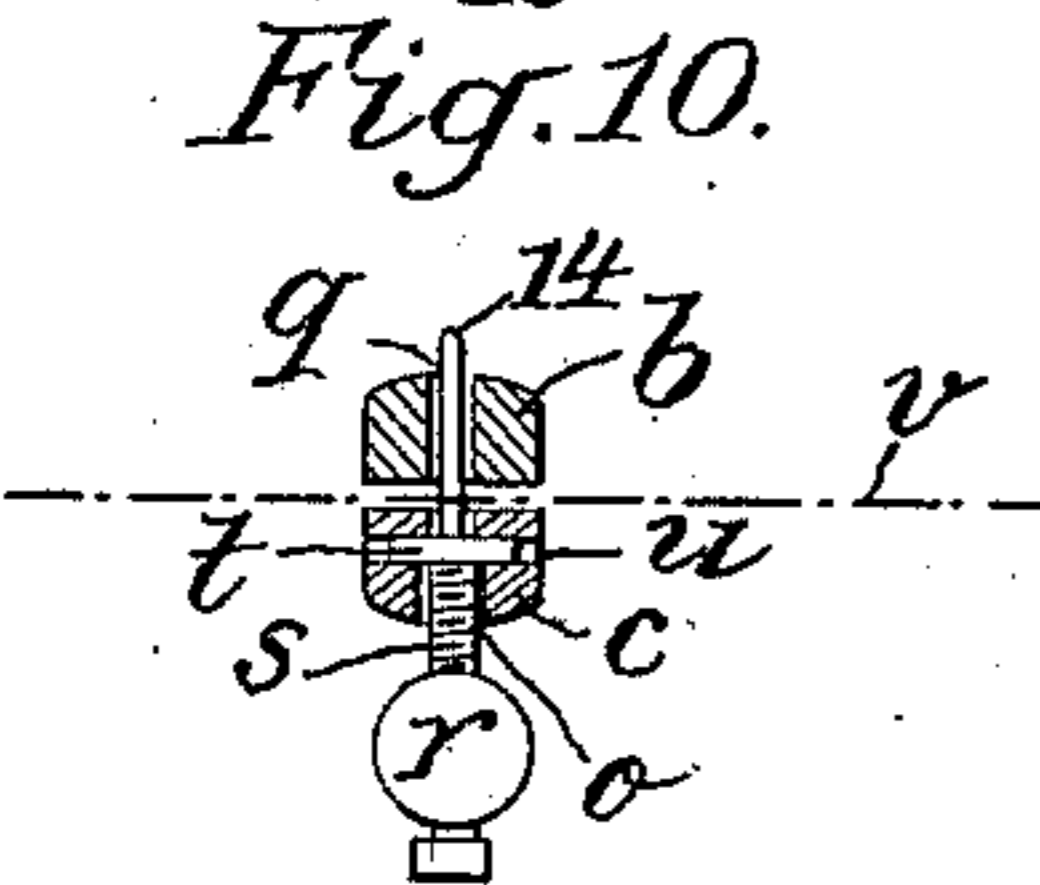


Fig. 10.

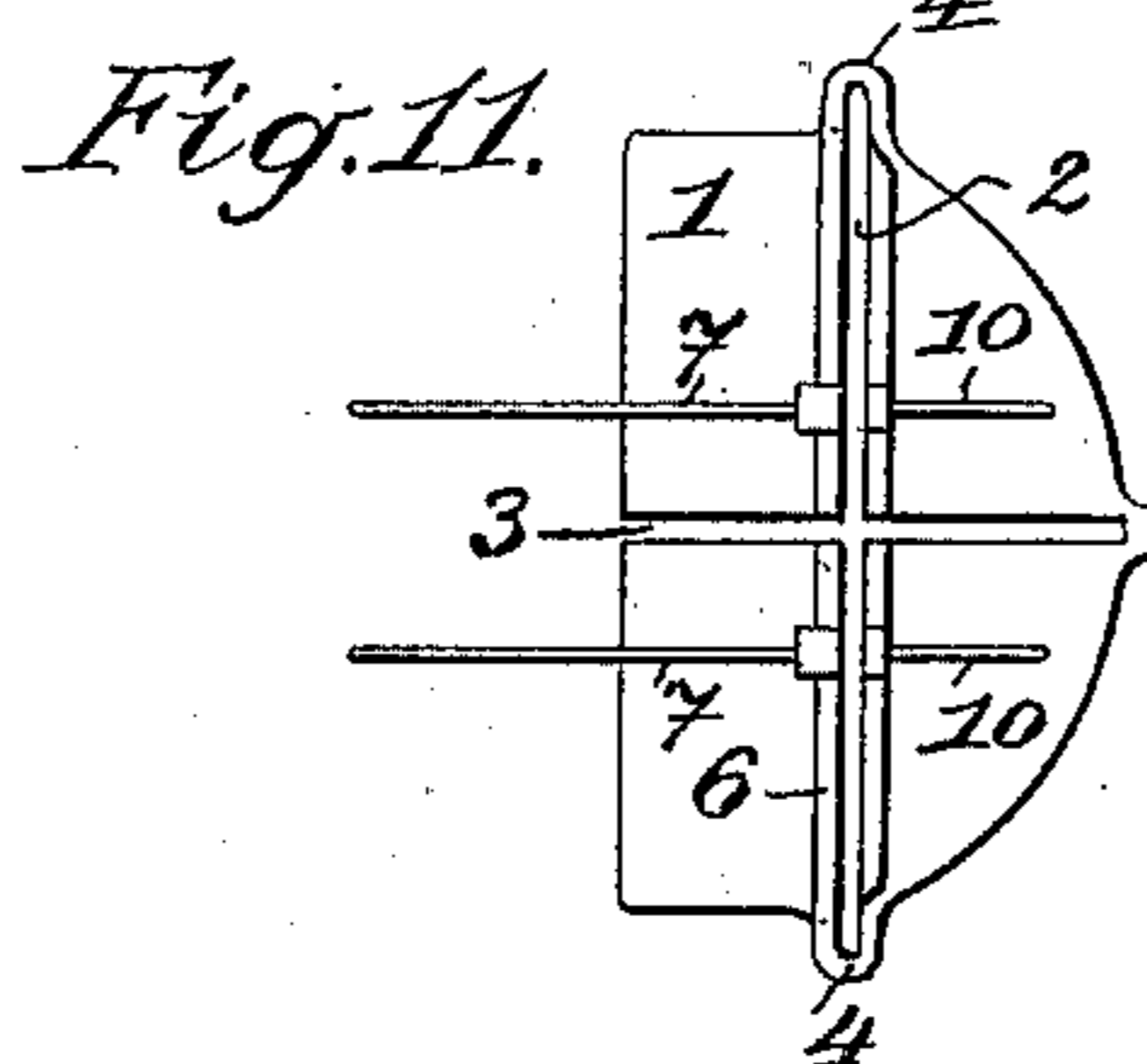


Fig. 11.

Witnesses:

Attest

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UNITED STATES PATENT OFFICE.

LUDWIK CHYBCZYNSKI, OF ALEXANDROVSK, RUSSIA.

BUTTONHOLE-SCISSORS.

SPECIFICATION forming part of Letters Patent No. 652,166, dated June 19, 1900.

Application filed October 25, 1899. Serial No. 734,739. (No model.)

To all whom it may concern:

Be it known that I, LUDWIK CHYBCZYNSKI, a subject of the Emperor of Russia, residing at Alexandrovsk, in the Province of Yekaterinoslav, in the Empire of Russia, have invented certain new and useful Improvements in Buttonhole-Scissors; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

The scissors forming the subject of the present invention and designed for cutting buttonholes are characterized by the feature that one of the two jaws, which are connected by a joint-pin, is provided with a slit as narrow as practicable and with a vertical and adjustable knife or cutter passing through this slit and having inclined cutting edges, while the second jaw, possessing a straight or, if desired, a cross-shaped slit, carries a bolt or pin capable of longitudinal adjustment in said slit, said bolt when the scissors are closed passing through a slit in the first jaw and serving as a stop for the edge of the material, so that after suitable adjustment of the knife or cutter and bolt the scissors can cut in the material, which is pushed in between the two jaws as far as the stop-bolt, a buttonhole at the desired distance from the edge of the material and of the desired length.

The slits designed for the passage of the knife or cutter and of the stop bolt or pin in lieu of being made directly in the upper jaw may advantageously be arranged in a rotary disk mounted in the said jaw and carrying the adjustable knife, so that the latter by a turning movement may be adjusted at will for cutting longitudinal buttonholes (buttonholes parallel to the edge of the material) or transverse buttonholes, (buttonholes at right angles to the edge of the material.) The lower jaw of the scissors is, moreover, furnished with a device which prevents the knife (when cutting longitudinal buttonholes) from drawing the material through the portion of the slit which by reason of the movement of the knife in the arc of a circle about the joint-pin

must be broader and from tearing the same irregularly.

The accompanying drawings represent a pair of buttonhole-scissors arranged for cutting longitudinal and transverse buttonholes.

Figure 1 is a side elevation of the scissors, the jaws being closed. Fig. 2 is a section taken on the line A B of Fig. 1. Fig. 3 is an under plan of the scissors and representing the material introduced between the jaws. Fig. 4 is a plan of the lower jaw. Fig. 5 is an end elevation of the scissors, the scale provided in the lower jaw being removed. Fig. 6 is a longitudinal section in part taken through the middle of the scissors and in part laterally of the same. Fig. 7 is a vertical transverse section taken on the line C D of Fig. 6. Figs. 8 and 9 are transverse sections of the lower jaw, taken, respectively, on the lines E F and G H, Fig. 3. Fig. 10 is a transverse section taken on the line I K, Fig. 6. Fig. 11 is an under plan of the small slit plate inserted into the lower jaw; and Fig. 12 is a perspective view of a portion of the rule or scale fixed to the lower jaw and adapted to slide thereon, the bent wire otherwise fixed to the end of the same being partly slid into lateral grooves in the rule.

The scissors comprise two jaws *b* and *c*, connected by the joint-pin *a*, the upper jaw *b* being made at the cutting end in the form of an incomplete ring *d*, into which is inserted a flanged disk *f*, which is adapted to be rotated in the ring. This disk may be held in the position it occupies either, as shown in Fig. 2, by a clamping-screw *e* or by a spring engaging with a notch in the disk or merely by the spring action of the two arms of the incomplete ring *d*. In the disk is furnished a very narrow diametrical slit *g*, and at right angles to the same a radial groove is provided on the under side, or preferably, as represented, a radial slit *h*, the latter extending nearly to the center of the disk, while the diametrical slit *g* terminates on one side near the edge of the disk, as shown in Fig. 2. The disk *f* carries, moreover, upon its upper side a stand *i*, which carries a screw-threaded spindle *k*, adapted to be raised and lowered by means of the nut *j*, the bottom end of this spindle being rigidly connected with a guide

7, which slides up and down the legs of the stand and carries at its under side a thin knife or cutter *m*, which passes through the narrow slit *g* in the disk *f*. The cutting edges of the knives *m* are arranged at an angle, as shown.

At its front end the lower jaw *c* is widened to form a disk *n*, which, as shown in Fig. 4, possesses two slits *o* and *p*, arranged at right angles to each other, and of which one slit *o*, arranged in the longitudinal direction of the jaw, is prolonged rearwardly nearly to the joint of the two jaws and is made so narrow that it admits only of the passage of the knife *m* through it. On the other hand, the second slit *p*, arranged in the transverse direction, is comparatively wide and is covered by a plate 1, furnished with two very narrow slits 2 and 3, arranged at right angles to each other, and of which one slit 3 is arranged in the longitudinal direction of the jaws and is open to the rear, while the other slit 2 is arranged in the transverse direction of the jaws and extends on both sides so close to the edge of the small plate that the parts of this plate are connected only by narrow bridge-pieces 4. The plate 1 is placed in a shallow recess 5, provided on the upper side of the disk *n* of the lower jaw *c* in such a manner that the surface of the small plate is in the same plane as that of the disk *n*. Upon the under side of this small plate, along the rear edge of the transverse slit 2, is provided a strengthening-rib 6, in which are fixed two slender rods 7 7, which pass through guiding lugs or projections 8, situate on the under side of the disk *n*. Surrounding the rods 7 7 are helical springs 9, which at one end bear against the projections 8 and at the other end against the rib 6 and which operate on the small plate 1 when the latter is pushed rearward or toward the left in Fig. 3, within the recess 5, to push the said plate to the front again, or to the right in Fig. 3, to its position of rest. Moreover, on the underside of the small plate 1 and on the opposite edge—i. e., the front edge of the transverse slit 2—are fixed two slender longitudinal rods 10, which in the position of rest of the small plate bear against a bridge-piece 11. This bridge-piece may at will be displaced toward the front or toward the rear, within the longitudinal guides provided upon the under side of the disk *n*, by means of an adjusting-screw 13.

In the side walls bounding the slit *o* in the lower jaw there are arranged grooves, or, as represented, slits *u*, completely passing through these side walls, and into which the transverse portion *t* of a screw-threaded bolt *s* passes, as shown in Fig. 10. The prolongation 14 of the bolt *s*, which is situated above this transverse portion, enters a groove, or, as represented, passes through a slit *q*, extending completely through the wall, Figs. 1, 6, and 10, so that the unintentional sliding of the material or of the edge of the material over the bolt will be obviated. The bolt *s* may be displaced forward or rearward inside

the slit *o* and changed in any of its positions through the medium of the ball-shaped nut *r*.

The above-described scissors may be adjusted for cutting transverse buttonholes (buttonholes at right angles to the edge of the material) and longitudinal buttonholes, (buttonholes parallel to the edge of the material.) In the former case the knife *m* occupies the position shown in the drawings. When arranged for cutting longitudinal buttonholes, the disk *f* of the upper jaw is turned through an angle of ninety degrees, so that the surface of the knife is at right angles to the longitudinal direction of the jaws. The radial slit *h* in this case forms the prolongation of the slit or of the groove *q*, so that the bolt *t* may be pushed forward nearly up to the center of the disk *f*, as is requisite when cutting buttonholes situated near the edge of the material.

If the instrument is intended exclusively for cutting transverse buttonholes or exclusively for cutting longitudinal buttonholes, the construction may be considerably simplified. The movable V-shaped knife *m*, having its cutting edges arranged at an angle, and the movable cross-shaped bolt *s t*, however, remain in all cases; but the disk *f* in such cases is rigidly connected to the narrow portion *b* of the upper jaw or is made in one piece with it. The slit *g* is arranged transversely or longitudinally, as may be required, the whole front portion of the upper jaw receiving in the latter case an oval or elongated shape in plan. In the lower jaw instead of two slits arranged at right angles to each other there is only a single slit, which is transverse or longitudinal, according to the kind of hole to be cut. In case the scissors are designed to be used for transverse buttonholes the slit *o* is arranged in the longitudinal direction and passes behind the center of the disk from a straight (interiorly smooth) slit into a slit which is cross-shaped in transverse section. If the scissors are to serve for cutting longitudinal buttonholes, there is only a broad transverse slit *p* provided in the disk *n*. The above-described arrangement for adjusting the small plate and the other parts which are in connection with the same will, however, remain.

The mode of using the scissors will now be more particularly described.

If transverse buttonholes are to be cut in the material, the disk *f* is first turned in such a manner that its slit *g* will occupy the longitudinal direction of the scissors—that is to say, the direction of the slit *o* and of the slit *q*. By means of the nut *j* the knife is then adjusted in the vertical direction so that the base-line of the triangular portion of the knife projecting below the under surface of the upper jaw will be equal to the length of the buttonhole to be cut. Finally the bolt *s t* is so adjusted that the distance of the same from the end of the said base-line which is nearest to it is equal to the required distance

of the edge of the material from the end of the buttonhole situated nearest to it. The scissors being now adjusted, on opening the same the material *v* is pushed between the jaws until the edge of the material bears against the bolt. When the jaws are closed, the knife, owing to its adjustment, cuts the buttonhole at the desired distance from the edge of the material and the predetermined length. If longitudinal buttonholes are to be cut in the material, the disk *f* is turned through an angle of ninety degrees, so that the slit *g* will be at right angles to the slit *o*. The adjustment of the knife takes place in the manner previously described, and the bolt *s t* is moved until its distance from the knife is equal to the required distance of the buttonhole from the edge of the material. When cutting longitudinal buttonholes, care should be taken that in the closing of the two jaws the knife will pass exactly into the transverse slit 2 of the small plate 1. For this purpose the position of the plate must, if necessary, be regulated by means of the screw 13. In the closing of the jaws the knife is moved in an arc of a circle about the joint-pin *a*. This movement in an arc of a circle has no prejudicial effect when cutting transverse buttonholes, as the knife remains in the plane of the cut; but when cutting longitudinal buttonholes the knife would in the absence of the small plate 1 draw the material in many cases through the slit *p*, which must be sufficiently wide to permit the movement of the knife in the arc of a circle, and in this case the knife would not cut the material regularly, but would tear it and make the buttonhole of the wrong length. This is obviated by the small plate 1, which during the closing of the jaws is moved backward by the knife traveling in an arc of a circle in opposition to the action of the springs 9, while in the opening of the jaws the springs 9 will push the small plate 1 back again to its original position, when the rods 10 strike against the bridge-piece 11. As the slit 2 through which the knife passes is very narrow, the knife cannot draw the material away with it, and the buttonhole will therefore be cut in regularly.

In order that the buttonholes may be cut invariably at the same distance from each other, as desired, without the material being previously marked, the following arrangement is made: At the front end of the disk *n* of the lower jaw a guide 15 is furnished for a rule 16, provided with a scale and arranged at right angles to the longitudinal direction of the scissors. At one end of this rule is an eye 17 for the reception of the wire 18, bent to a U form. The free end of this wire passes around the edges of the material *v*, which is pushed between the jaws, and marks the position of the buttonhole. After adjusting the rule to the desired distance between the buttonholes the first buttonhole 19, Fig. 3, is cut. Then the scissors are moved along the edge

of the material till the free end of the wire 18 arrives in line with the buttonhole 19 just cut. Fig. 3 shows the scissors in this position. The second buttonhole is then cut. If the scissors are moved each time in the described manner, all the buttonholes will be cut at the desired distance apart.

When the wire 18 is not in use, it may be pushed into grooves in the longitudinal edges of the rule, as indicated in Fig. 12, and stowed away in this manner.

It is obvious that scissors may also be used for cutting buttonholes arranged in any other desired manner.

It is advantageous to make the disk *f* of hard transparent material—for instance, of horn—in order that the material pushed between the jaws may be visible through the disk.

I claim as my invention—

1. A buttonhole-cutter comprising reciprocally-movable cloth-clamping jaws, one of which carries a triangular cutter whose apex projects through a slot in said jaw and is at the center of the cut to be made, and a corresponding slot in the other jaw for the passage of said cutter, and a guide passing through both clamping-jaws, for the edge of the cloth, for the purpose set forth.

2. A buttonhole-cutter comprising reciprocally-movable cloth-clamping jaws, one of which carries a triangular cutter whose apex is at the center of the cut to be made and projects through a slot in said jaw, and a corresponding slot in the other jaw for the passage of said cutter, and a guide for the edge of the cloth, held in grooves in the lower jaw, passing through the upper jaw and adjustable toward and from said cutter, for the purpose set forth.

3. A buttonhole-cutter, comprising reciprocally-movable cloth-clamping jaws, a vertical screw-adjusted two-edged cutter whose apex is at the center of the cut to be made, is carried by, and projects through a slot in, said jaw, and a corresponding slot in the other jaw for the passage of said cutter, a guide for the edge of the cloth, secured to and adjustable in and along one of the jaws toward and from said cutter, and adapted to pass through the other jaw, and means for securing said guide to one of the jaws when adjusted, for the purpose set forth.

4. A buttonhole-cutter, comprising reciprocally-movable cloth-clamping jaws, a vertically-adjustable two-edged triangular cutter whose apex is at the center of the cut to be made and projects through a slot in said jaw, and a corresponding slot in the other jaw for the passage of said cutter, a guide for the edge of the cloth, adjustable in slots in extensions of the jaws in line with the cutter-slots therein, and means for securing said cutter, when adjusted, to one of said jaws, for the purpose set forth.

5. A buttonhole-cutter comprising reciprocally-movable cloth-clamping jaws, a verti-

cally adjustable and revoluble triangular cutter whose apex is at the center of the cut to be made, projects through a slot in said jaw, and a corresponding slot in the other jaw for the passage of said cutter, and means for determining the distance between buttonholes, for the purpose set forth.

6. A buttonhole-cutter having a revoluble blade and organized to cut buttonholes at right angles to or parallel with the edge of the cloth, substantially as set forth.

7. A buttonhole-cutter having a blade revoluble about a vertical axis organized to cut buttonholes at right angles to or parallel with the edge of the cloth, in combination with means for determining the length of the buttonhole to be cut, substantially as set forth.

8. A buttonhole-cutter organized to cut buttonholes from their centers to their ends at right angles to or parallel with the edge of the cloth, in combination with means for determining the distance between the buttonholes and the edge of the cloth, substantially as set forth.

9. A buttonhole-cutter having a two-edged revoluble blade organized to cut buttonholes at right angles to or parallel with the edge of the cloth, in combination with means for determining the distance between buttonholes substantially as set forth.

10. A buttonhole-cutter comprising cloth-clamping jaws having handles pivoted together shear-like, a cutter revoluble about a vertical axis and provided with two cutting edges carried by and projecting through a slot in one of said jaws, and a corresponding slot in the other jaw, for the passage of said cutter, for the purpose set forth.

11. A buttonhole-cutter comprising reciprocally-movable cloth-clamping jaws, a cutter carried by and projecting through a slot in one of said jaws, the other jaw provided with two slots intersecting each other at right angles, and means for setting the cutter-carrier jaw to bring the cutter in line with one or the other of the aforesaid intersecting slots, for the purpose set forth.

12. A buttonhole-cutter comprising cloth-clamping jaws pivoted together shear-like, a cutter carried by and projecting through a slot in one of said jaws, the other jaw provided with two slots intersecting each other at right angles, and means for adjusting the cutter in line with one or the other of the aforesaid intersecting slots, for the purpose set forth.

13. A buttonhole-cutter, comprising cloth-clamping jaws, reciprocally-movable supports therefor, one of said jaws provided with two slots intersecting each other at right angles, the other jaw revoluble in its support and carrying a triangular cutter whose apex projects through a slot in the jaw, whereby said cutter can be brought in line with one or the other of the aforesaid intersecting slots, and means for adjusting the cutter to project

more or less through the slot in the jaw carrying the same, whereby the length of the buttonhole to be cut can be varied, substantially as set forth.

14. A buttonhole-cutter, comprising cloth-clamping jaws, reciprocally-movable supports therefor, one of said jaws provided with two slots intersecting each other at right angles, the other jaw revoluble in its support and carrying a triangular cutter whose apex projects through a slot in the jaw, whereby said cutter can be brought in line with one or the other of the aforesaid intersecting slots, and means for adjusting the cutter to project more or less through the slot in the jaw carrying the same, whereby the length of the buttonhole to be cut can be varied, in combination with a guide for the edge of the cloth determining the distance of the buttonhole from said edge, substantially as set forth.

15. A buttonhole-cutter, comprising cloth-clamping jaws, reciprocally-movable supports therefor, one of said jaws provided with two slots intersecting each other at right angles, the other jaw revoluble in its support and carrying a triangular cutter whose apex projects through a slot in the jaw, whereby said cutter can be brought in line with one or the other of the aforesaid intersecting slots, and means for adjusting the cutter to project more or less through the slot in the jaw carrying the same, whereby the length of the buttonhole to be cut can be varied, in combination with a guide for the edge of the cloth adjustable toward and from the cutter, whereby the distance of the buttonhole from said edge can be varied, substantially as set forth.

16. A buttonhole-cutter, comprising cloth-clamping jaws, reciprocally-movable supports therefor, one of said jaws provided with two slots intersecting each other at right angles, the other jaw revoluble in its support and carrying a triangular cutter whose apex projects through a slot in the jaw, whereby said cutter can be brought in line with one or the other of the aforesaid intersecting slots, and means for adjusting the cutter to project more or less through the slot in the jaw carrying the same, whereby the length of the buttonhole to be cut can be varied, in combination with means for determining and varying the distance between buttonholes, substantially as set forth.

17. The combination with the handle *b* having segmental diverging arms, the discoidal slotted cloth-clamp *f* supported from said arms and having upright cutter-guides connected at their upper end, the triangular cutter *m* having cross-head forked at opposite ends, straddling said guides, an adjusting-screw connected with the cross-head of the cutter, and the milled nut *j* on said screw working in a slot in the connection between the said guides; of the handle *c* carrying the discoidal cloth-clamp *n* provided with a slot parallel

and in line with the slot in the cloth-clamp *f*, substantially as and for the purpose set forth.

18. The combination with the handle *b*, provided with the vertical longitudinal slot *q*, and the segmental diverging arms *d*, the discoidal cloth-clamp *f* carried by said arms and provided with a diametral slot in line with slot *q*, the knife-carrier *i* mounted on said clamp, the triangular knife adjustable vertically in said carrier, the apex of said knife projecting through a diametral slot *g* in said clamp *f* in line with the slot *q*; of the handle *c* having vertical and transverse longitudinal slots *o* and *u* and carrying a discoidal cloth-clamp provided with a diametral cutter-slot in line with slot *o*, and the cloth-guide consisting of a screw *s* terminating in a guide-pin 14 and having collar *t* and nut *r*, said screw-pin adjustable in the vertical longitudinal slots *q*, *o*, and said collar in the transverse longitudinal slot *u*, substantially as and for the purpose set forth.

19. The combination with two reciprocally-movable cloth-clamps, each provided with a slot for the passage of the cutter, a graduated scale connected with one of the clamps and having secured to one end the bent-wire cloth-guide 18, means for adjusting said scale in the direction of feed of the cloth and a device for adjusting the guide 18; of a two-edged cutter secured to the other cloth-clamp and projecting through the cutter-slot therein, substantially as and for the purpose set forth.

20. In a shear-like buttonhole-cutter, the combination with one of the handles terminating in segmental grooved diverging arms, a discoidal cloth-clamp seated to revolve in the groove of said arms, and provided with

a diametral slot parallel with said handle, and a cutter mounted on said clamp with its cutting edge projecting through said slot; of the second handle terminating in a discoidal cloth-clamp *n* provided with a cutter-slot *o* parallel with its handle, with a wider slot *p* at right angles thereto and with a recess 5, the plate 1 having intersecting slots 2, 3, and arranged to slide in said recess 5, said plate carrying rods 7 guided in lugs 8 on said clamp, and the springs 9 mounted on said rods 7, substantially as and for the purpose set forth.

21. In a shear-like buttonhole-cutter, the combination with one of the handles terminating in segmental grooved diverging arms, a discoidal cloth-clamp seated to revolve in the groove of said arms and provided with a diametral slot parallel with said handle, and a cutter mounted on said clamp with its cutting edge projecting through said slot; of the second handle terminating in a discoidal cloth-clamp *n* provided with a cutter-slot *o* parallel with its handle, with a wider slot *p* at right angles thereto, and with a recess 5, the plate 1 having intersecting slots 2, 3, and arranged to slide in said recess 5, said plate carrying rods 7 guided on lugs 8 on said clamp, the springs 9 mounted on said rods 7, and means for adjusting the plate 1 in the direction of the slot *o* in clamp *n*, substantially as and for the purpose set forth.

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

LUDWIK CHYBCZYNSKI.

Witnesses:

THOMAS E. HEENAN,
THOMAS MILES.