

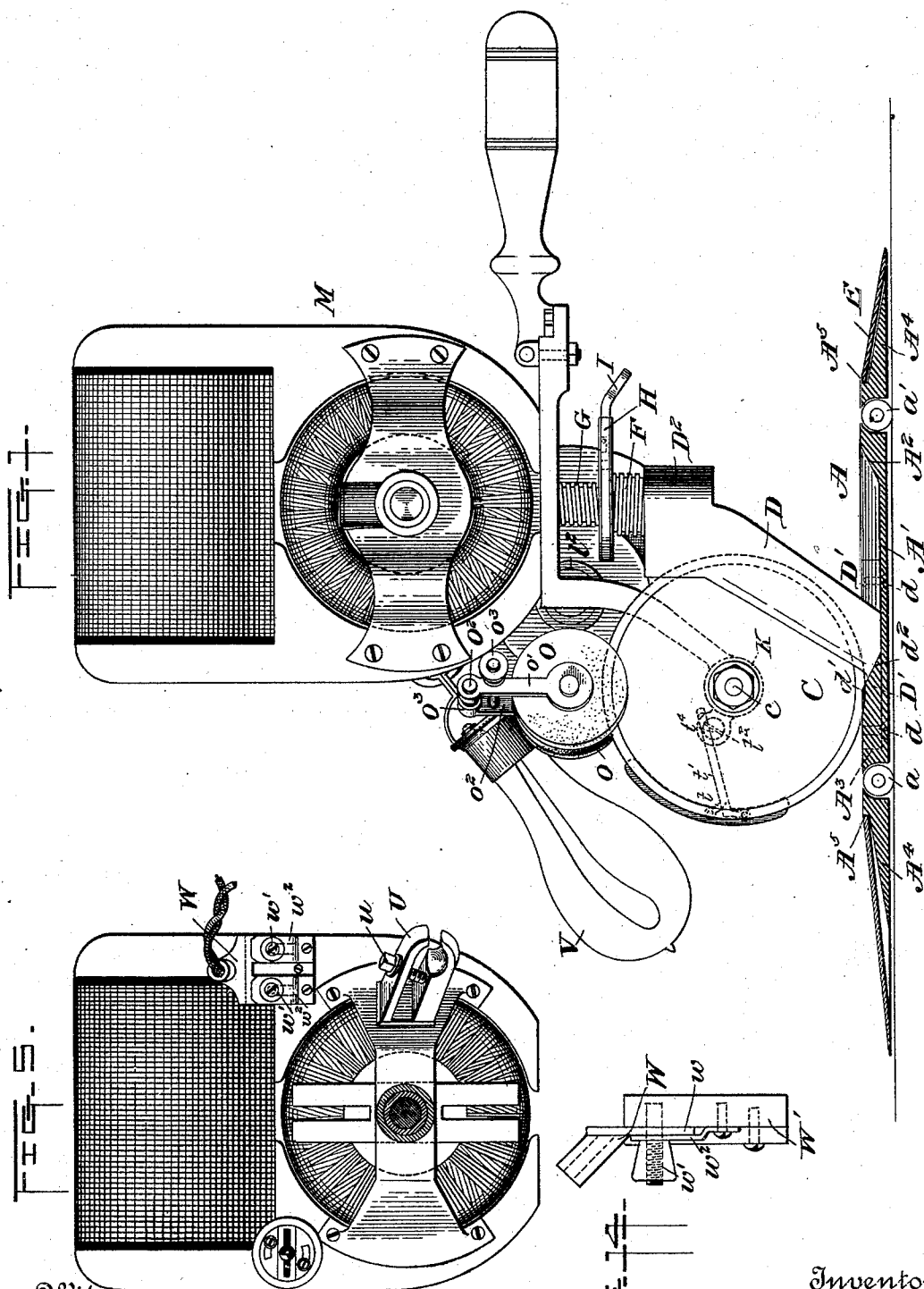
(No Model.)

4 Sheets—Sheet 1.

J. WOLF, Jr.
CLOTH CUTTING MACHINE.

No. 505,690.

Patented Sept. 26, 1893.



Witnesses
L. A. Connor M
Chas. E. Riordan.

Inventor
John Wolf, Jr.
By Butterworth
and Dowell
his Attorney S.

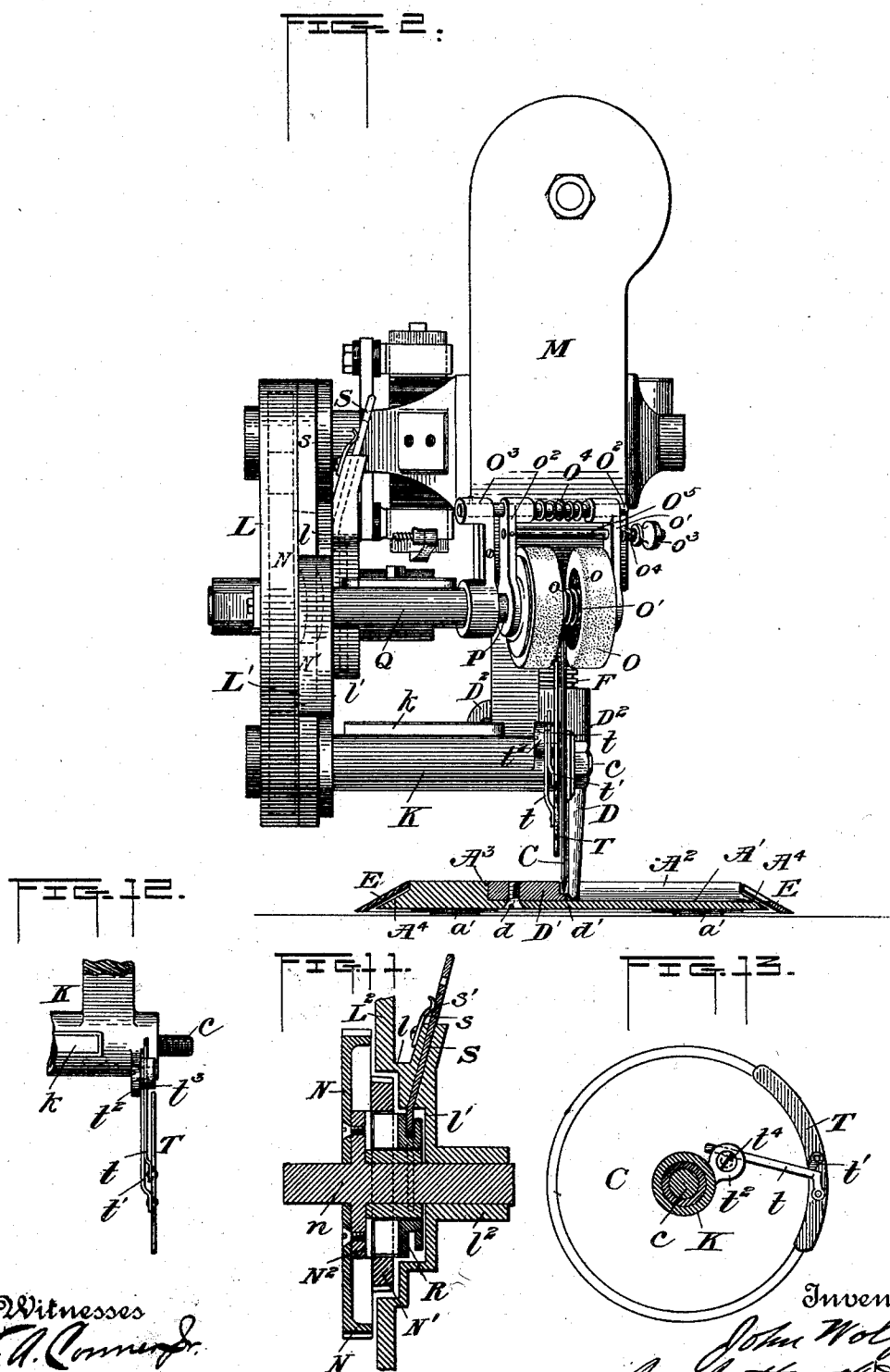
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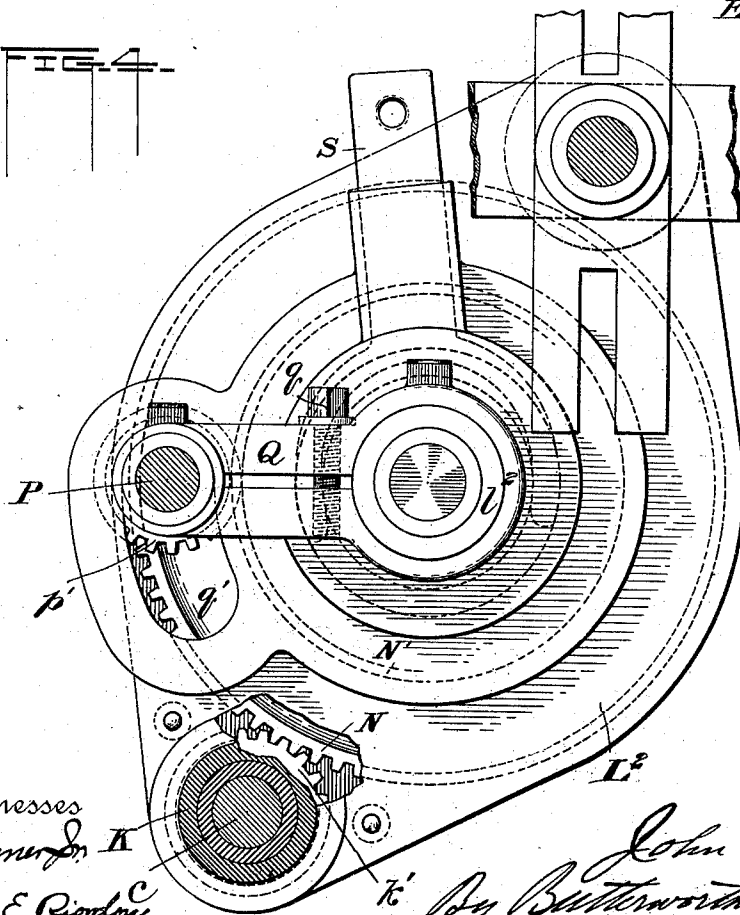
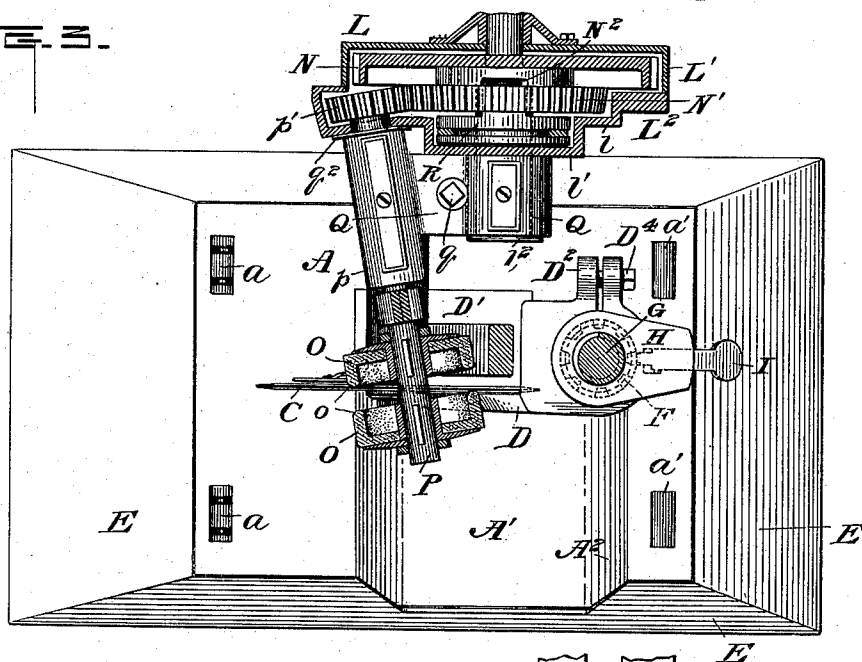
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4 Sheets—Sheet 3.

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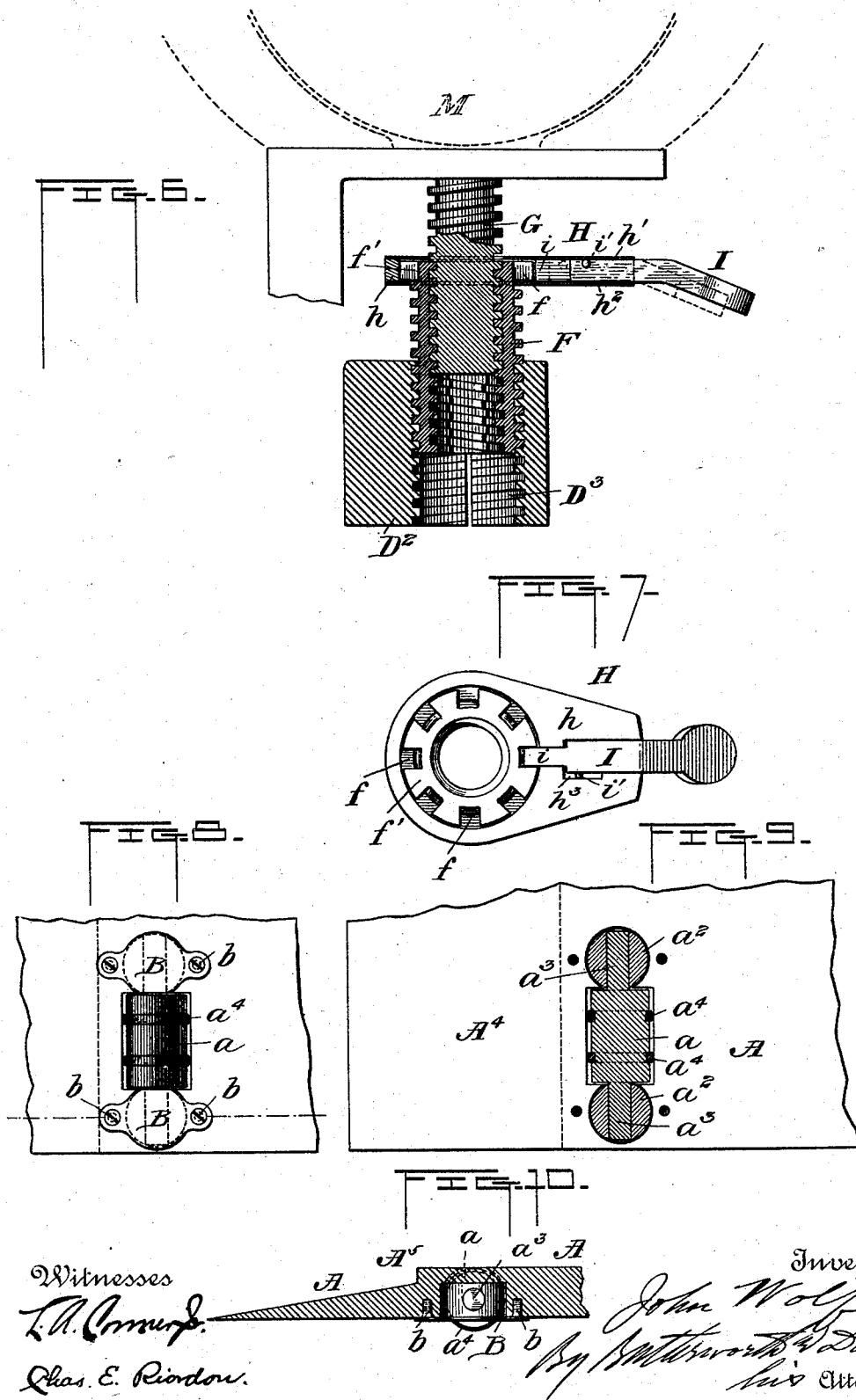
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CLOTH CUTTING MACHINE.

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UNITED STATES PATENT OFFICE.

JOHN WOLF, JR., OF CINCINNATI, OHIO, ASSIGNOR OF ONE-HALF TO JACOB BLOCH, OF SAME PLACE.

CLOTH-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 505,680, dated September 26, 1893.

Application filed May 17, 1893. Serial No. 474,578. (No model.)

To all whom it may concern:

Be it known that I, JOHN WOLF, Jr., a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Cloth-Cutting Machines; 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.

This invention relates to machines or devices for cutting textile fabrics and other material, but more particularly to a class of machines especially designed for cutting cloth, for the manufacture of wearing apparel.

The object of the invention is to improve certain features in the construction and arrangement of parts of the cloth-cutting machine shown and described in a joint application by myself and J. Bloch for Letters Patent of the United States, filed November 10, 1892, Serial No. 451,507, and to increase the efficiency of such machine.

The invention will first be described with reference to the accompanying drawings, which form a part of this specification, and then particularly pointed out in the claims at the end of this description.

Referring to the drawings by letters of reference, Figure 1 represents a side elevation of a machine embodying my invention; the foot-plate and cloth-lifting plate or shoe being shown in section. Fig. 2 represents a front elevation of the same with the foot-plate and shoe in section. Fig. 3 represents a horizontal plan of the machine, partly in section, on a plane directly above the cutter. Fig. 4 is a detached side elevation, partly in section and on a slightly enlarged scale, looking at the inner side of the casing which incloses the driving gearing, and illustrating the means for mounting and adjusting the emery wheel shaft. Fig. 5 is a partial side view of the machine at the side thereof opposite the side shown in Fig. 1. Fig. 6 is a detail vertical sectional view of the mechanism for raising and lowering the motor-supporting frame and knife or cutter. Fig. 7 is a plan of the adjusting device or wrench for actuating the elevating mechanism. Figs. 8, 9 and 10, are details illustrating the rollers

upon which the foot-plate is supported and the method of journaling the same therein. Fig. 11 is a detail sectional view of the clutch mechanism for throwing the emery wheels in and out of gear. Fig. 12 is a front view of the knife guard. Fig. 13 is a side elevation of the same showing its position in respect to the knife; and Fig. 14 is a detached view of the cord coupling.

Similar letters of reference are used to denote similar parts in different views.

The present improvements relate principally to the construction of the elevating mechanism, the knife-guard or shield, the foot and cloth-lifting plates, the rollers for supporting said plates and the bearings therefor, and to the means for mounting, adjusting and tensioning the emery wheels or devices for sharpening the cutter; but the main features of the machine, that is, the motor, its supporting frame, the rotary knife, the grinding disks or wheels and means for driving the same, and the general arrangement of the various parts of the machine, are quite similar to the arrangement shown and described in the aforesaid joint application, and therefore need not be particularly described herein.

The foot-plate A, is supported upon rollers a , a' , which are provided with ball bearings a^2 , the latter being pierced to receive the spindles or journals a^3 , projecting from the ends of the rollers and fitted in cylindrical boxes B, which may be detachably secured underneath the foot-plate by set screws b , b' , or in any proper manner, whereby the bearings are rendered self-aligning, being adapted to turn as the roller-shaft changes position. The front rollers a , are preferably circumferentially grooved to receive elastic packing rings or rubber bands a^4 , which project slightly beyond the surface or periphery of the roller, whereby the front end of the machine is prevented from slipping or moving around too freely in turning. The foot-plate is preferably, though not necessarily, made rectangular in form, and its upper surface is concaved or hollow as shown at A'. Within said concave portion is secured a standard D, which is provided or formed integrally with a foot D', which abuts against a shoulder formed by the

front vertical wall of the concavity A' , at one side of the standard, as shown in Figs. 1 and 2, and has its upper surface flush with the upper surface of the foot-plate, to which it may be detachably secured by means of a set screw d , entering the same through an opening in the bottom of the foot-plate. The side of the foot D' , adjacent to the rotary cutter C , may be beveled and notched or grooved, as at d' , to receive the lower cutting edge of the knife, and its rear edge is inclined or slopes from this point downwardly, as at d^2 , to the surface of the concavity, so as to form a gentle incline corresponding with the upward slope A^2 , in the foot-plate in the rear thereof. A concavity or depression is thus formed in the surface of the foot-plate extending at one side of the standard and in rear thereof so as to permit the cloth to dip at the side and in rear of the cutter as the foot-plate is moved along underneath the cloth, whereby the knife may be guided and controlled and the machine made to readily turn corners or acute angles without rumpling or injuring the cloth. The standard may also be easily removed and is braced in use by means of the vertical walls of the block or foot D' , abutting against the corresponding front wall or shoulder A^3 , of the foot-plate. The foot-plate is further provided with inclined extensions A^4 , at the sides and ends thereof, upon which rests a cloth-lifting plate E , which surrounds the foot-plate flush with the upper surface thereof and abuts against shoulders A^5 , which prevent independent lateral or to and fro movement of the parts, while the extensions A^4 , prevent separation when the foot-plate is raised, and also hold the cloth-lifting plate flush with the upper surface of the foot-plate. The side of the cloth-lifting plate adjacent to the concavity A' , in the foot-plate is depressed or falls away with the foot-plate so as to provide an even unbroken surface the length of the concavity at that side of the plate. The foot-plate also preferably has steeply inclined sides, and gently inclined front and rear portions as shown. The standard D , may be formed with a plain inner face and a straight but rearwardly and upwardly inclined front beveled edge, and with an inwardly projecting lip on its rear edge adapted to overlap the rear edge of the rotary cutter C , so as to serve as a guard for the rear edge of the cutter. It is also provided with a laterally extending bifurcated portion or clamp D^2 , having a vertical screw-threaded opening D^3 , therethrough, to receive an exteriorly and interiorly screw-threaded split bushing F , the lower split portion of which is shown more clearly in Fig. 6 within which latter is fitted an exteriorly screw-threaded post or stem G , upon which the framing which supports the rotary motor and knife-actuating mechanism is mounted. The split portion or clamp D^2 , may be loosened or tightened by means of a set or binding screw D^4 , for the purpose of clamping the bushing F , so as to prevent ro-

tation thereof in use, and to permit the bushing to be turned when it is desired to raise or lower the motor frame to change the position of the cutter; the parts of the bifurcated clamp being adapted to spring apart sufficiently for this purpose. By making the thread on the exterior of the bushing left-handed while the thread on the stem G , is right-handed, a compound or differential screw is produced, whereby, by turning the bushing F , to the right or left, accordingly as it is desired to raise or lower the knife, the post and bushing, by the rotation of the latter, will be caused to move in opposite directions, and the one being considerably larger than the other the adjustment of the knife will be proportionate to the difference between the two motions thus produced, so as to permit a very nice adjustment of the knife. For the purpose of accomplishing this adjustment I provide an adjusting device or wrench H , which is shown more clearly in Figs. 6 and 7, and which may be constructed as follows:— A plate h , of proper thickness having a circular opening therethrough of a size sufficient to fit over and work freely on the upper end of the bushing F , is placed between similarly shaped upper and lower plates h' , h^2 , the former having an opening therethrough adapted to the size of the post G , which it encircles, while the latter is formed with an opening adapted to receive and encircle the upper end of the bushing so that the part h , will be confined between said plates h' , and h^2 , and supported at the top of the bushing so as to be capable of rotation independently thereof or with the same. I , denotes a hand lever which slides in an elongated slot or recess in the plate h , and has a tooth or projection i , which is adapted to enter any one of a series of notches f , formed in a collar f' , upon the head of the bushing F , so that when said lever is thus locked to the bushing and turned either to the right or left the bushing will turn therewith. The handle I , may be pressed normally outward by a spring or other means so as to be kept out of engagement with said notches, and its movement is limited by means of a pin i' , working in a slot or recess h^3 , at one side of the elongated slot in the plate h . It will thus be seen that when the binding screw D^4 , is loosened and the tooth i , of the lever I , engaged with any one of the notches f , in the head of the bushing F , the latter may be rotated for the purpose of raising or lowering the knife, as may be desired, and when the desired adjustment is made further rotation of the bushing is prevented by tightening the screw D^4 . This construction also affords a very easy means of removing the rotary knife for renewal or repairs, which may be accomplished by simply loosening the clamp D^2 , and turning the lever I , sufficiently to slightly raise the knife, whereupon the framing and knife may be rotated horizontally sufficiently to remove the rotary cutter and substitute a new one therefor; and this

being done, the parts may be swung back and lowered into the proper position for use, in which position the clamp will be again tightened, causing the split bushing to hug and hold the post against rotation while the bushing itself is confined between the jaws of the bifurcated clamp.

The rotary cutter may be secured to an arbor *c*, which has its bearings in a sleeve or casing *K*, projecting inwardly from the depending portion of a casing *L*, which forms a housing for the driving gearing which imparts motion from the rotary motor to the knife in a manner quite similar to the arrangement shown in the aforesaid joint application; said sleeve being provided with a lubricating cup *k*, having a removable or hinged cover to permit the introduction of lubricating material. A pinion *k'*, on the arbor of the cutter and within the casing *L*, meshes with a main driving gear-wheel *N*, which latter also meshes with a similar pinion on the armature shaft of the motor *M*, which imparts motion to the driving gears.

The casing *L*, is preferably constructed in two parts *L'*, *L''*, which are adapted to receive between them and inclose the train of gearing by which motion is imparted from the rotary motor to the knife *C*, and emery wheels *O*, *O*, as will be presently explained. The outer part *L'*, supports a bearing for the projecting end of the spindle *n*, of the main driving gear *N*, while the inner part *L''*, is offset as at *l*, *l'*, to provide room for housing the gearing which drives the emery wheels and also the clutch mechanism by which said wheels may be thrown into and out of gear. Said part *L''*, may also be formed with a cylindrical projection or hub *l''*, having a bushing therein to provide a bearing for the shaft of the main driving gear *N*, at that side of the casing. The emery wheels or grinding disks *O*, *O*, are keyed upon an obliquely-arranged shaft *P*, so as to permit said wheels to slide thereon within certain limits but without rotation independently thereof. Said shaft may be journaled in a bushing or bearing *p*, which is carried by a swinging clamping-arm *Q*, the inner end of which is rotatably fitted on the cylindrical projection *l''*, of the section *L''*, of the casing *L*; said arm consisting preferably of a bifurcated or two-part spring-clamp, the parts of which are connected by a binding screw *q*, so that the arm may be adjustably clamped to said cylindrical projection so as to sustain the emery wheel shaft in the desired position and provide a ready means for changing the position thereof at will. A pinion *p'*, on the end of the shaft *P*, within the inclosing casing *L*, meshes with a gear *N'*, fitting upon a sliding clutch sleeve *R*, which is adapted to engage a clutch section or notched circular flange *N''*, rigidly secured to the inner face of the main driving gear *N*, so that when said clutch sections are engaged the gears *N*, *N'*, will rotate together and impart motion to the emery wheel shaft.

To adapt the clutch mechanism to be readily engaged and disengaged at will so as to stop and start the emery wheels as occasion may require, but without stopping the knife, I provide a shifting lever *S*, which has a forked lower end (see dotted lines Figs. 4 and 11) fitting a groove in the sliding sleeve *R*, and extends thence upwardly at an obtuse angle through a suitable guide-way which may be provided therefor in the casting or part *L''*, of the casing *L*, so that on the downward movement of the lever the clutch sleeve will be slid inward to engage the teeth thereof with the toothed flange on the driving gear *N*. A spring *s*, pressing upon the outer end of the lever *S*, is adapted to engage a recess or notch *s'*, in said lever when the latter is raised, so as to hold the lever in an elevated position with the clutch disengaged. As will be seen, when the lever is drawn up or lifted, the inclined portion thereof will cause the clutch sleeve *R*, to be drawn back out of engagement with the circular flange or clutch section *N''*, carried by the main driving gear, and vice versa, so that the emery wheels may be stopped or started at will without interfering with the operation of the knife.

To provide for sharpening the edge of the cutter while the machine is in operation and to cause the grinding disks or wheels to cut more or less rapidly, according to the rapidity with which the cutting edge of the knife is worn in cutting different kinds of grades of cloth, the disk should be sustained in yielding engagement with opposite sides of the cutter, with provision for varying the tension or pressure upon the knife. To this end, a spring *O'*, is placed on the shaft *P*, between the hubs of the disks and tends to separate the same; the disks being confined between pendent sliding arms *o'*, *o''*, which may have their upper ends sleeved upon a rod *O''*, projecting from an upright arm *O''*, clamped upon the sleeve or bearing *p*, and which are held apart by means of a coiled or other suitable spring *O''*, on the rod *O''*, and prevented from separating by an adjusting rod *O''*. The outer arm may be confined upon the rod *O''* in any proper manner. The adjusting rod *O''*, has one end secured to the arm *o''*, passes thence loosely through the opposite arm *o'*, and has secured upon its outer free end a thumb nut or milled wheel *o''*, between which and the arm *o'*, is placed a coiled or other suitable spring *o''*, which tends to press the arms and disks together. The disks are thus sustained in a slightly oblique position in respect to the cutter shaft, so as to impart a sharp beveled edge to the knife, and by means of the springs which tend to normally separate the disks and arms, and the spring which tends to force the disks together, they are yieldingly sustained in contact with the edge of the knife, with provision for easily and quickly varying the tension without stopping or interfering with the work of the machine. I preferably employ emery wheels of the form shown, that is,

dished or cup-shaped structures having their adjacent edges o , o , rounded, so as to engage the beveled cutting edge of the knife and prevent wearing away more than is necessary to provide a keen edge.

As the knife edge wears away it becomes necessary to shift the knife-guard, and to adapt this to be done without interfering with the emery wheels and to conform to the varying size of the knife, I provide means for adjusting the guard as follows:—A pair of arms or bars t , t' , have their rear ends clamped between a lug t^2 , on the sleeve K , and a collar or washer t^3 , at the opposite side thereof, by means of a set screw t^4 , and their forward ends are formed with an offset or bend extending at an angle to their main portions, the one upwardly and the other downwardly, and are loosely riveted or pivoted to the guard T , so as to separate the pivots thereof sufficiently to permit the guard to be tilted, for the purpose of changing its inclination in respect to the edge of the cutter, by sliding either of said arms forward or back when the clamp for holding the same is loosened. The arms are preferably confined in a recess in the side of the nut or washer t^3 , so as to sustain the arms in a fixed position in respect to the guard and prevent the latter from dropping down should the clamp screw t^4 , work loose. By these means, as the knife edge wears away, thus decreasing the size of the knife, the guard may be adjusted either forward or back and tilted, by means of the sliding arms t , t' , so that the guard may be properly aligned to conform to the curvature of the cutting edge of the knife, and secured in various positions without interfering with the emery wheels as the latter are gradually lowered with the wearing away of the knife.

The motor M , may be of the form shown or of any preferred construction, and is mounted over the knife so as to throw a preponderance of its weight slightly to one side of the knife and standard, for the purpose of counterbalancing a portion of its own weight together with the frame and other parts of the machine at the opposite side of the knife. The several parts are thus arranged in a compact form so as to balance and steady the movements of the machine and prevent the same from tilting or toppling over in operation.

The frame-piece or bearing for the armature-shaft at one side of the machine is provided or formed with a lamp-socket holder or clamp U , projecting obliquely toward the front of the machine and having a binding screw u , adapted to support the lamp V , at one side of and slightly in advance of the cutter, in such manner that it may be readily adjusted to meet the various requirements to adapt the light to fall upon the cloth to the best advantage in cutting different kinds of goods.

To adapt the flexible cord or wire, by which current is conveyed from a stationary source of electric energy to the motor, to be easily

and quickly attached or detached, I provide a separable cord-coupling, which may be constructed as follows:—An insulating coupling section W , having a socket to receive the circuit wires is provided with two metallic pendent strips or plates w , whose pendent forked ends are adapted to fit astride a pair of set screws w' , which pass through contact springs w^2 , secured to an insulating base or coupling section W' , which is fastened to the side of the machine or framing, so that when the parts of the coupling are connected and the screws tightened the desired metallic contact will be effected, but when the screws are loosened the coupling piece W , may be readily detached so as to disconnect the circuit wires at will.

The operation of the invention will be readily understood from the foregoing description. The cloth to be cut being properly marked and placed upon the table, and the motor being set in motion the machine is moved along with the foot-plate underneath the cloth so as to cause the knife to follow the marks or lines upon the cloth. As the knife wears the grinding disks may be set in motion at intervals by means of the clutch mechanism, or continuously revolved, if desired, so as to grind the edge of the knife more or less rapidly as occasion may require; the tension of the springs pressing the disks to the knife being varied at will through the medium of the thumb screw o^3 . As the knife is reduced in size, by loosening the binding screw q , the shaft which supports the disks may be lowered by lowering the outer end of the swinging clamp Q , and secured in the desired position by tightening the screw. To permit this latter adjustment the said shaft passes through an arc slot q' , in the part L^2 , of the casing L , said slot being protected by a flexible strip or washer of leather or other suitable material q^2 , which is interposed between the casing and the end of the sleeve in which the shaft has its bearings. To lower the knife and motor-supporting frame, the screw D^4 , is loosened and the lever I , being pressed into engagement with the notched collar on the bushing F , is rotated so as to rotate the bushing in the proper direction, whereupon the screw D^4 , is again tightened and the parts secured in working position.

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

1. In a cloth cutting-machine, the flat-topped foot-plate having the standard and knife supported thereon, and provided with a concavity or depression in the upper surface thereof extending rearwardly from said standard and at one side only thereof to the edge of the plate, whereby the cloth is adapted to dip at the side and in the rear of the knife, substantially as described.

2. In a cloth-cutting machine, the foot-plate having the concavity formed in the upper surface thereof and extending partially across

the plate in rear of the cutter and also at one side of the latter, in combination with the cloth-lifting plate surrounding said foot-plate and having at the side thereof adjacent to said concavity a depressed portion the upper surface of which is flush with the surface of said concavity, substantially as and for the purpose described.

3. In a cloth-cutting machine, the combination with the foot-plate provided with inclined extensions at the sides and ends thereof and having the standard thereon supporting the rotary knife and its actuating mechanism, the independent cloth-lifting plate surrounding said foot-plate and resting upon said extensions, with its surface flush with the surface of the foot-plate, substantially as described.

4. In a cloth-cutting machine, the combination of the foot-plate having the standard thereon, the rotary knife and motor in gear with said knife, supported by said standard, and the cloth-lifting plate surrounding said foot-plate; the surfaces of said plates being depressed in rear of the knife and at one side thereof, substantially as described.

5. In a cloth-cutting machine, the combination with the foot-plate having the standard thereon, and the rotary cutter and its actuating mechanism supported by said standard; said foot-plate having a concavity in its upper surface extending in rear of and at one side of said standard, together with an independent cloth-lifting plate encircling the foot-plate and resting upon extensions or projections therefrom, with its inner edges abutting against a shoulder upon the foot-plate and its surface flush with the surface of the latter, substantially as described.

6. In a cloth-cutting machine, the foot-plate having the standard thereon and provided with a concavity in its upper surface extending from a point back of the knife-edge to the rear of the plate and having upwardly inclined walls at its front and rear extremities, said concavity also extending at one side of said standard; the latter having a flat foot seated and secured in said concavity so as to form part of the front and side walls thereof, and the surface of said foot being flush with the surface of said foot-plate, substantially as described.

7. In a cloth-cutting machine the combination with the rotary knife, the motor and means for rotating the knife, of the elevating and sustaining mechanism consisting of a differential screw on which said motor, knife and knife-actuating mechanism are mounted, and means for turning the screw so as to raise or lower the knife, substantially as described.

8. In a cloth-cutting machine, the combination of the foot-plate, the standard mounted thereon and having the bifurcated clamp with screw-threaded opening therein, the interiorly and exteriorly screw-threaded sleeve fitting said opening, the post screwed into said sleeve, the rotary motor and knife in

gear therewith mounted on said post, and means for rotating said sleeve so as to raise and lower said knife and its actuating mechanism, substantially as described.

9. The combination in a cloth-cutting machine, of the foot-plate, the standard, the cutter, the motor and gearing for imparting motion from said motor to said cutter, with the elevating and sustaining mechanism comprising the exteriorly screw-threaded post on which said cutter, motor and gearing are mounted, the interiorly and exteriorly screw-threaded bushing in which said post is fitted, and means for adjusting the bushing so as to cause the post and bushing to move in opposite directions for the purpose of raising or lowering the knife, substantially as described.

10. In a cloth-cutting machine, the combination with the foot-plate and standard, the rotary cutter journaled at one side of said standard in a frame mounted thereon, together with a rotary motor and driving gearing for imparting motion to the cutter mounted on said frame, and the elevating mechanism comprising the bifurcated clamp having the vertical interiorly screw-threaded opening therein, the exteriorly and interiorly screw-threaded sleeve or bushing fitting said opening, the post screwed into said bushing, and means for rotating the bushing so as to raise and lower the knife and frame supported upon said post, substantially as described.

11. The combination in a cloth-cutting machine with the foot-plate and standard, of the motor, the motor-supporting frame mounted upon said standard and having the rotary knife journaled therein, means for imparting motion from said motor to said knife, and mechanism for raising and lowering the knife and supporting frame, comprising the interiorly screw-threaded clamp on said standard, the rotatable bushing having the notched collar on the head thereof screwed into said clamp and provided with interior screw threads having the exteriorly screw-threaded post fitted therein, together with the adjusting lever adapted to engage said notched collar for the purpose of rotating the bushing, substantially as described.

12. In a cloth-cutting machine, the combination with the foot-plate and standard, the knife and means for imparting motion thereto, of the exteriorly screw-threaded post, and the exteriorly and interiorly screw-threaded bushing into which said post is screwed; said bushing being screwed into a bifurcated spring-clamp upon the head of said standard having an interiorly screw-threaded cylindrical opening therethrough to receive the bushing, means for binding said bushing in said clamp so as to prevent rotation thereof, and means for rotating the bushing when said clamp is loosened, substantially as described.

13. In a cloth-cutting machine, the combination with the foot-plate and standard, the motor and knife, and the knife elevating mechanism consisting essentially of a screw-

threaded post upon which the motor and knife-supporting frame and driving gearing are mounted, and the exteriorly and interiorly screw-threaded bushing into which said post is screwed, of the adjusting device comprising a plate having a circular opening therethrough, a thumb-piece or lever fitted to slide in an elongated slot in said plate and having a projecting point or tooth to engage a notch in the head of said bushing, and a pair of similarly shaped plates fitting one above and the other below said slotted plate so as to sustain said device in position upon the head of the bushing, substantially as described.

14. In a cloth-cutting machine, the combination with the foot-plate and standard, the rotary knife and the screws of different sizes working one within the other, mounted on said standard, and adapted to raise and lower the knife, of the adjusting device comprising triple plates superimposed one upon the other, the upper and lower plates having circular openings therethrough of different sizes fitting over different sized screws, and the intermediate plate having a larger opening, and a lateral extension provided with an elongated slot, and a sliding thumb-piece or lever working in said slot and having a toothed end projecting beyond the opening in the plate for engaging and rotating one of the screws, substantially as described.

15. In a cloth-cutting machine, the combination with the rotary knife, of the guard and the sliding bars pivoted to said guard; the pivotal connection of the one being placed above that of the other, together with a clamp for securing the opposite ends of said bars and sustaining the guard in proper position upon the knife, whereby the guard is adapted to be adjusted either forward or back and tilted to conform to the size of the knife as the latter is reduced by wear, substantially as described.

16. In combination with the rotary knife, the curved tilting guard having the adjusting bars pivoted thereto with their pivots arranged one above the other, and the clamp for holding said bars consisting of a lug projecting from the knife-arbor bearing, the recessed nut or washer and the set screw for clamping the bars in said recess, substantially as described.

17. The combination, in a cloth-cutting machine, provided with the rotary knife and means for driving the same, of the grinding disks mounted upon a shaft arranged obliquely to the axis of the knife, and means for holding said disks in yielding engagement with the edge of the knife and for adjusting the tension or pressure thereon, comprising the upright supporting arm, the rod or bar projecting therefrom in the plane of said shaft, the sliding pendent arms connecting said shaft and rod, with the disks between the arms; the springs adapted to separate said

disks and pendent arms, the intermediate adjusting rod connecting said arms but permitting one arm to slide thereon, a spring tending to force said arms together, and means for adjusting the tension of said springs so as to vary the force thereof and yieldingly sustain the disks in engagement with opposite sides of the knife, substantially as described.

18. In a cloth-cutting machine, the combination with the foot-plate, the standard, the rotary knife and means for imparting motion to said knife, of the grinding disks mounted upon a shaft which extends obliquely to the axis of the knife, means for imparting motion to said shaft, and a radially-swinging clamping-arm supporting said shaft at one end and having its opposite end journaled upon a projection from the frame, and a binding screw, whereby said clamping-arm may be adjusted for the purpose of raising and lowering the disks and secured in the desired position by tightening said screw, substantially as described.

19. The combination, in a cloth-cutting machine, of the rotary knife, the motor, and gearing for imparting motion from the motor to the knife; with the oblique shaft having the grinding disks mounted thereon, the pinion on said shaft, the loose gear-wheel meshing with said pinion, and means for engaging and disengaging said loose wheel and gearing so as to start and stop said grinding disks at will without interfering with the operation of the knife, substantially as described.

20. In combination with the rotary knife, the motor and main driving gear for imparting motion from the motor to the knife; the oblique shaft having the grinding disks mounted thereon, the pinion on said shaft, the loose gear-wheel meshing with said pinion, the clutch-sleeve adapted to engage said main driving gear and rotate therewith, the lever for shifting said clutch-sleeve, and means for sustaining said lever in position to hold the clutch disengaged, substantially as described.

21. In a cloth-cutting machine, the combination of the foot-plate and standard, the rotary knife, the rotary motor and intermediate driving gearing mounted upon said standard, of the grinding disks and driving gear therefor and means for engaging and disengaging the same with said motor driving gearing; together with a casing or housing formed in two separable parts and having a step-like offset portion in one part thereof adapted to snugly house the train of gearing and clutch mechanism for stopping and starting said disks, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JOHN WOLF, JR.

Witnesses:

T. J. COLLINS,

WM. LANDWEHR.

It is hereby certified that in Letters Patent No. 505,690, granted September 26, 1893, upon the application of John Wolf, Jr., of Cincinnati, Ohio, for an improvement in "Cloth-Cutting Machines," errors appear in the printed specification requiring correction, as follows: On page 1, in line 29, the words *figures and* should be inserted before the word "letters"; page 3, line 100, the word "of" should read *or*; same page line 101, the word "disk" should read *disks*; and page 5, line 54, strike out the semicolon after the word "of" and insert the same after the word "knife" same line; and that the said Letters Patent should be read with these corrections therein that the same may conform to the record of the case in the Patent Office.

Signed, countersigned, and sealed this 3d day of October, A. D. 1893.

[SEAL.]

WM. H. SIMS,

First Assistant Secretary of the Interior.

Countersigned:

S. T. FISHER,

Acting Commissioner of Patents.