

(No Model.)

4 Sheets—Sheet 1.

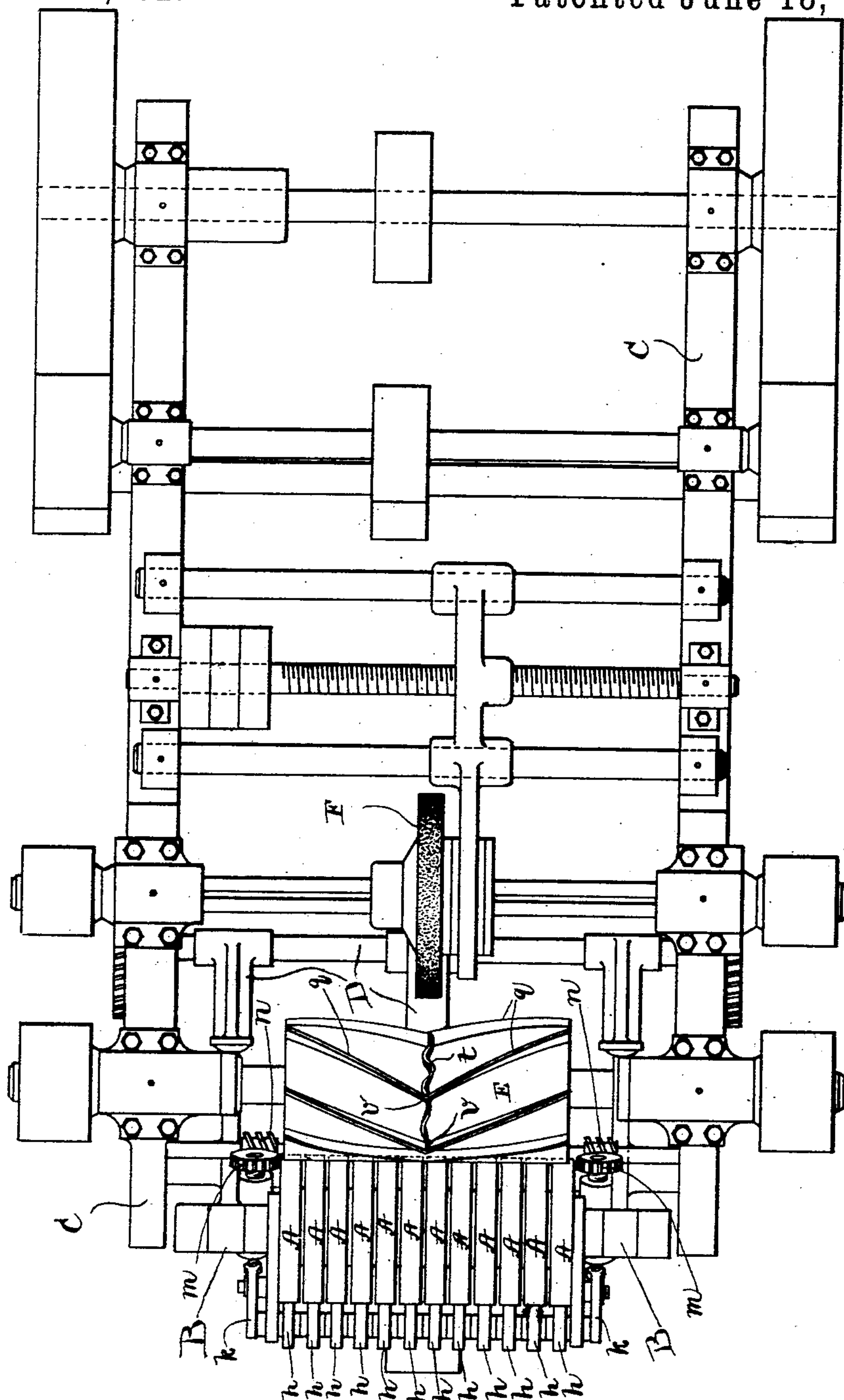
J. BOYLE.

MACHINE FOR BUFFING OR SHAVING HIDES OR SKINS.

No. 541,262.

Patented June 18, 1895.

FIG. 1-



WITNESSES:

A. D. Harrison  
Rollin Abell.

INVENTOR:

John Boyle  
By Wright, Brown & Quincy.  
Attorneys.

(No Model.)

4 Sheets—Sheet 2

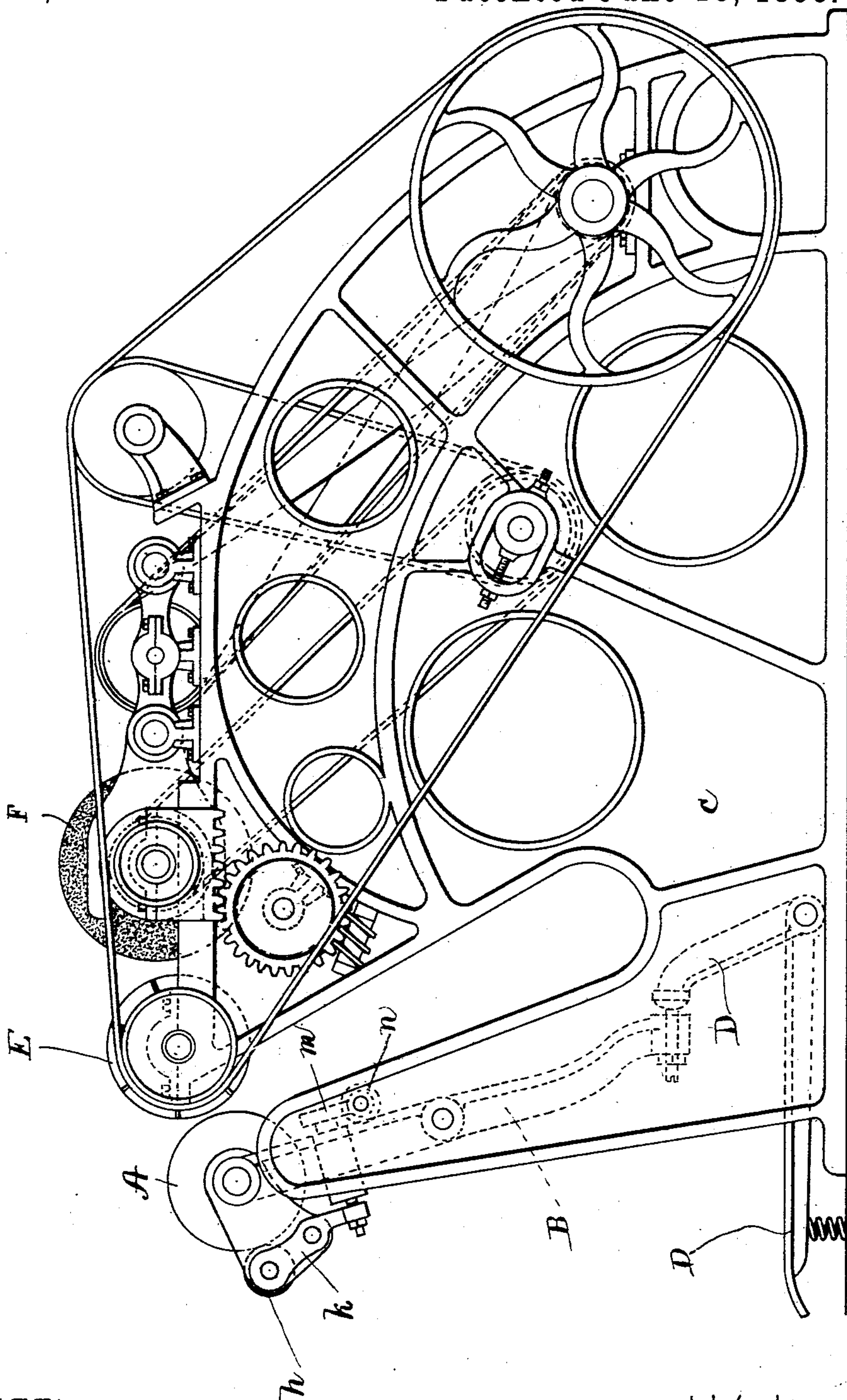
J. BOYLE.

MACHINE FOR BUFFING OR SHAVING HIDES OR SKINS.

No. 541,262.

Patented June 18, 1895.

FIG. 2.



WITNESSES:

*A. D. Harrison,*  
*Rollin Abell.*

INVENTOR:

*John Boyle*  
*By Wright, Brown & Quincy*  
*Attorneys*



(No Model.)

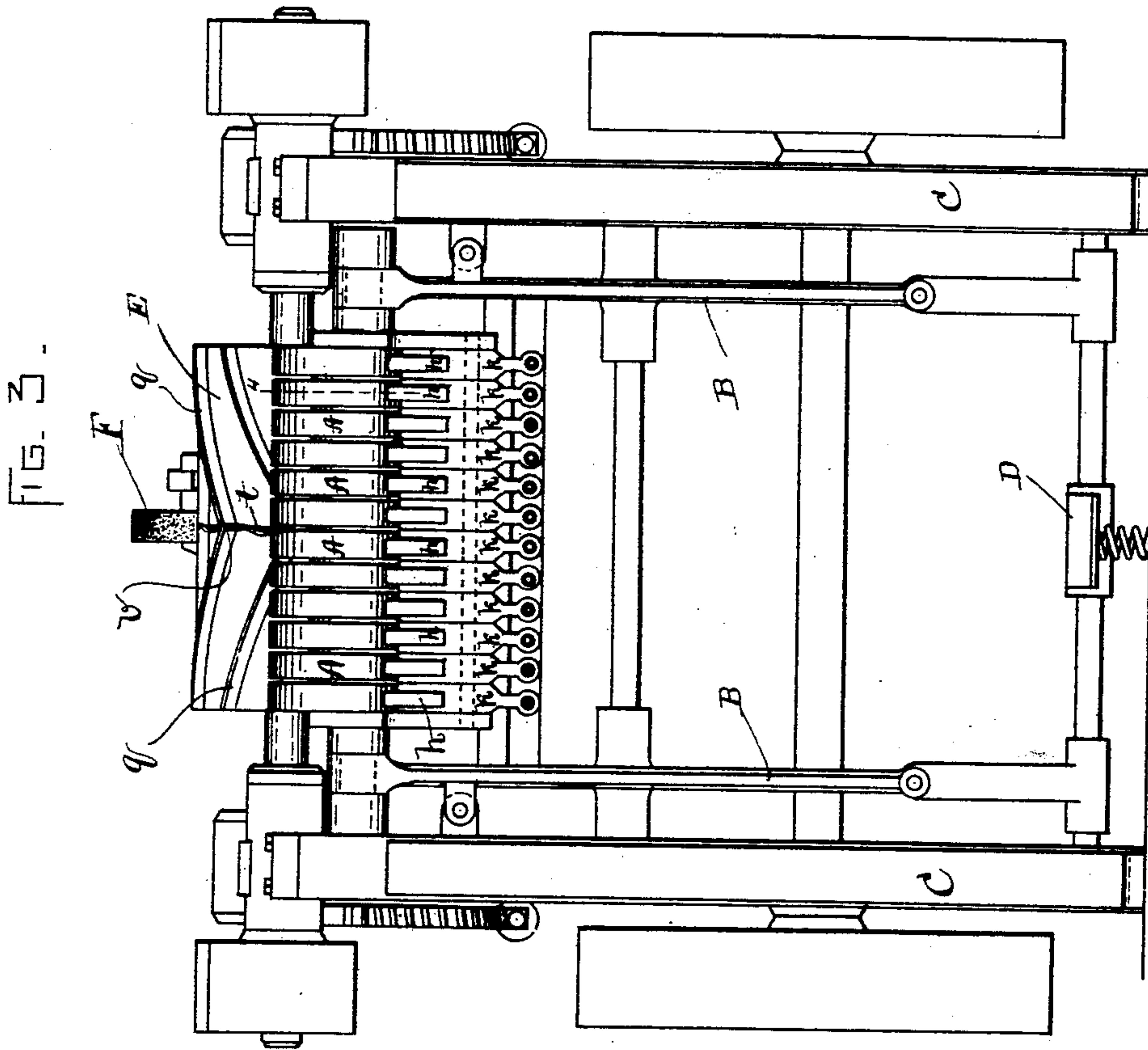
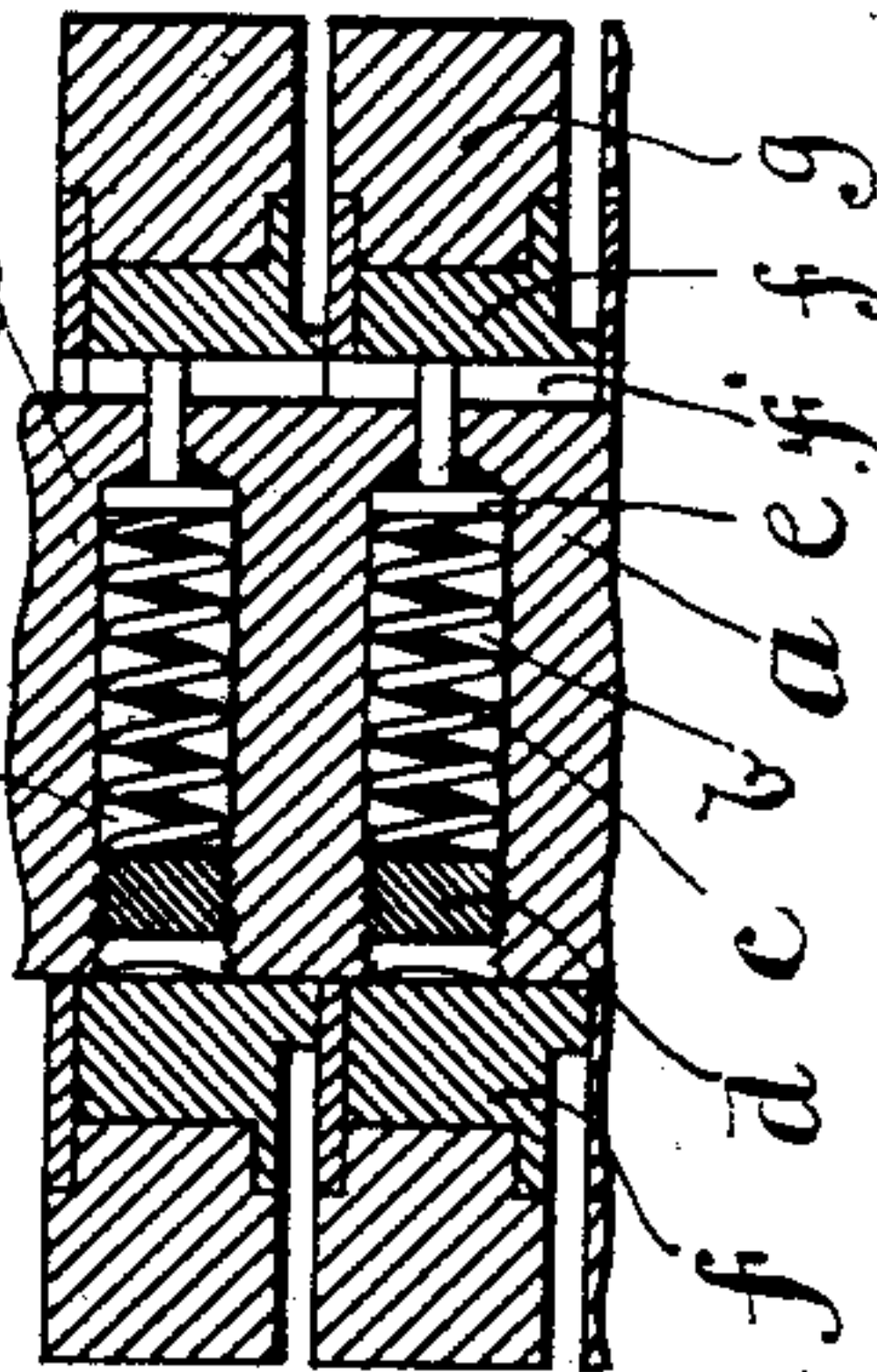
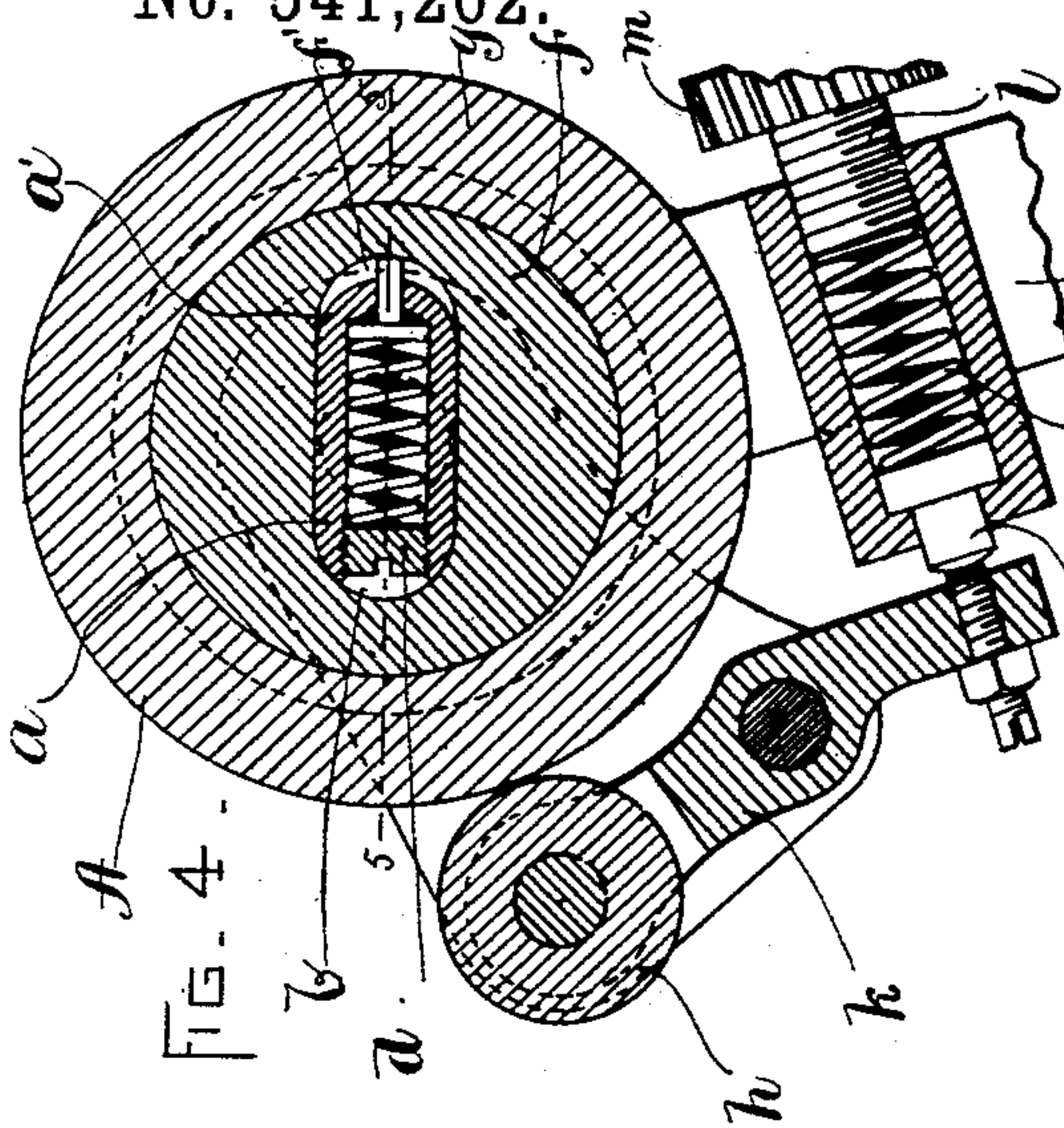
4 Sheets—Sheet 3.

J. BOYLE.

MACHINE FOR BUFFING OR SHAVING HIDES OR SKINS.

No. 541,262.

Patented June 18, 1895.



WITNESSES:

*A. D. Harrison*  
*Rollin Abell.*

INVENTOR:

*John Boyle*  
*By Wright, Brown & Quincy*  
*Attorneys*

(No Model.)

4 Sheets—Sheet 4.

J. BOYLE.

MACHINE FOR BUFFING OR SHAVING HIDES OR SKINS.

No. 541,262.

Patented June 18, 1895.

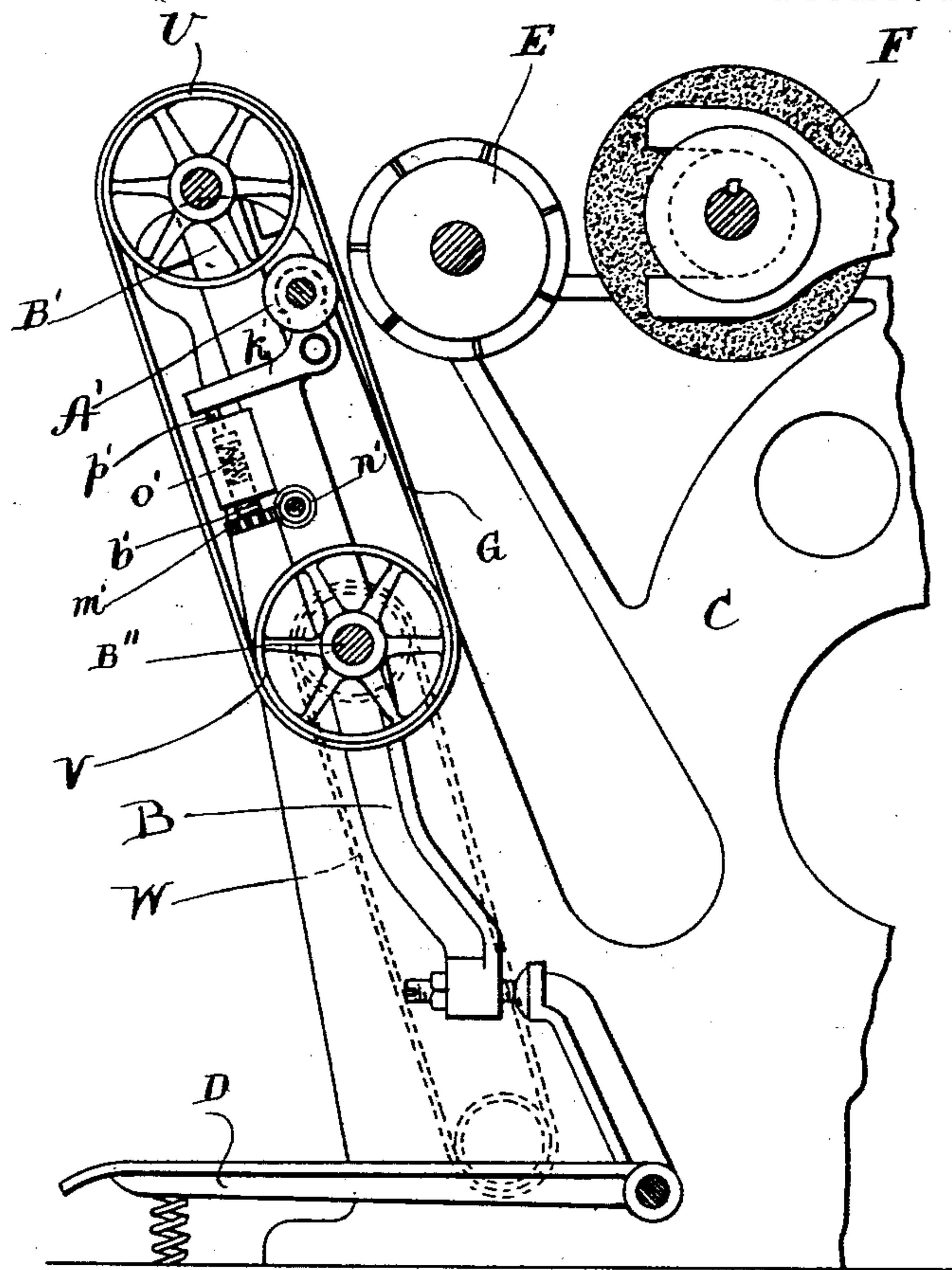


FIG. 6.

WITNESSES:

*A. D. Hanson*  
*Rollin Abell.*

INVENTOR:

*John Boyle*  
*By Wright, Brown & Quady*  
*Attorneys*



# UNITED STATES PATENT OFFICE.

JOHN BOYLE, OF PEABODY, MASSACHUSETTS.

## MACHINE FOR BUFFING OR SHAVING HIDES OR SKINS.

SPECIFICATION forming part of Letters Patent No. 541,262, dated June 18, 1895.

Application filed February 4, 1895. Serial No. 537,226. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN BOYLE, of Peabody, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Machines for Buffing or Shaving Hides or Skins, of which the following is a specification.

This invention relates to machines for buffing or shaving hides or skins, the operation of buffing being the removal from the hair or grain side of a skin a layer of uniform thickness, including only the grain surface and not the fiber lying within, while the operation of shaving is the removal of sufficient material to leave the skin of a uniform thickness, taking off more or less of the fiber as the original thickness of the skin may require. Machines for performing these operations consist essentially of a rotating cutter-cylinder, and a presser-roll by which the skins are presented to and pressed against the cutter cylinder and over which the skins are drawn by a workman, and appropriate journals, bearings, driving and operating mechanism, contained in a supporting frame. Heretofore the presser-rolls have been made with a straight unyielding surface parallel to the cutter-cylinder. There is no objection to this construction when the machines are used for shaving; but when used for buffing, serious damage results, since the varying thickness of the skin causes the cutter-cylinder to remove too much of portions of the grain and expose the fiber. Another objection is found in the arrangement of the knives upon the cutter-cylinder. These knives commonly extend in pairs from the middle of the cylinder in opposite spirals to the ends thereof and retreat from the direction of revolution, the purpose being to extend or spread the skin as the knives advance. As a result of this construction, the knives meet at the middle of the cylinder in an angle more or less obtuse, which advances in the direction of revolution and digs or cuts into the skin, marking and damaging the same. A further objection is that dragging the skin over the presser-roll by hand produces uneven results.

The object of my invention is to overcome these objections. I provide a presser-roll composed of a series of independently yielding sections for use when buffing, and having a

series of adjustable devices for supporting said sections unyieldingly when used for shaving. I also provide an improved cutter-cylinder; and finally, I provide a feeding belt or carrier.

Of the accompanying drawings, forming a part of this specification, Figure 1 is a plan of my improved buffing and shaving machine. Fig. 2 is a side elevation of the same. Fig. 3 is a front elevation of the same. Fig. 4 is a transverse section of my improved presser-roll. Fig. 5 is a partial longitudinal section of Fig. 4. Fig. 6 is a side elevation of a part of a buffing and shaving machine, showing my feeding belt or carrier and a modification of my improved presser-roll.

Corresponding parts in the several views are denoted by like letters of reference.

A is my improved presser-roll, supported by a swinging frame B hung in a fixed frame C supporting the operative parts of the entire machine. The said swinging frame is engaged with and operated by a foot-treadle D, all in the usual manner and purpose. The said presser-roll has a fixed longitudinal flat bar or axis *a* secured in the swinging frame B with its edge *a'* toward the cutter-cylinder E and provided with a series of transverse cells or perforations *b* each screw-threaded at one end and containing a spring *c*, an adjustable spring abutment *d* consisting of a screw fitted to the threaded portion thereof, and a spring-actuated plunger *e* projecting from the edge *a'* of the axis. Located upon the axis coincidently with the cells or perforations and the contained mechanism, is a corresponding series of independently yielding sections, each comprising a disk *f* having a slot *f'* fitting closely to the sides of the axis but of a length greater than the width thereof, and an external annular roller *g* turning upon the disk, which latter serves as a journal or bearing therefor.

The purpose and operation are evident. When the presser-roll, with a skin placed over the same for buffing, is advanced against the cutter-cylinder E, the pressure is transmitted through the rollers, disks, plungers, and springs, to the abutments, causing a compression of the springs, and each section is free to yield more or less as the varying thickness of the skin may require and for the pur-



pose set forth, each disk sliding upon the axis and against the adjacent disks.

Referring now to the adjustable device for supporting unyieldingly the movable sections 5 of my improved presser-roll, a series of idler rollers *h* is provided, each hung in a lever *k* and adapted to being pressed against a corresponding annular roller *g* at that part of the periphery opposite the cutter-cylinder *E* 10 by the simultaneous action of a series of screws *l* having geared heads *m* operated by an endless worm-shaft *n*, the said screws acting against the end of the lever *k* through interposed springs *o* and plungers *p*, the whole 15 being suitably fixed in and supported by the swinging frame *B*.

When the screws *l* are retracted, the sections of the presser-roll are free to move independently; but upon advancing the screws 20 *l* to their full extent by means of the worm-shaft *n* the pressure of the idler rolls upon the said sections is such as to render them practically unyielding except as a whole and for the purpose set forth.

25 *E* is my improved cutter-cylinder, supported by and rotating in the frame *C* and having a sharpening wheel *F* provided with adjusting and feeding mechanism, all in the usual manner.

30 On the cutter-cylinder *E* are the usual series of spirally arranged knives *q q* meeting at an angle *v* at the center of the cylinder, as hereinbefore described. My improvement consists in applying a peripheral guard-knife 35 *t* intersecting said angles, the edge thereof being deflected alternately toward each end of the cylinder and effectively preventing the digging in of the angles as they advance in the direction of revolution, as set forth.

40 *G* is my improved feeding-belt or carrier interposed between the presser-roll *A* and the cutter-cylinder *E*, said belt passing over the idler pulley *U* and the driving-pulley *V*, the former being supported by an extension 45 *B'* of the swinging frame *B*, as shown, and the latter being placed upon the shaft *B''*, which forms the fulcrum of said frame, and driven by the belt *W*.

At *A' k' l' m' n' o' p'*, &c., is shown a modification of my improved presser-roll applied 50 and adapted to the support of my feeding-belt or carrier.

Upon placing a skin upon the belt *G* and advancing the frame *B* by means of the treadle 55 *C* to the cutter-cylinder, the skin will be fed by and against the said cutter-cylinder; and by suitably adjusting my improved presser-roll may be either buffed or shaved.

It is evident that the roll *A'* may be replaced by a shoe secured to the lever *K'* over 60 which the belt *G* may slide.

When my improved machine is required only for the shaving of skins, I provide a straight unyielding pressure-roll parallel to 65 the cutter-cylinder.

I claim—

1. In a machine of the character specified,

the combination of a rotary cutter having spirally arranged knives, a swinging frame movable toward and from the cutter, a roll-supporting bar or axis mounted on said frame, a series of non-rotating disks mounted to move 70 independently crosswise of said bar, a series of rings of rigid material mounted on said disks and independently movable toward and from the cutter, and means for pressing said rings and disks independently and yieldingly toward the cutter, said rings collectively constituting a pressure roll which is movable 75 bodily toward and from the cutter by the swinging frame and is adapted to yield locally. 80

2. In a machine of the character specified, the combination of a rotary cutter having spirally arranged knives, a swinging frame movable toward and from said cutter, a roll-supporting bar or axis mounted on said frame, a series of non-rotating disks mounted to move 85 independently crosswise of said bar, a series of independent springs supported by the bar and arranged to press said disks toward the cutter, and a series of rings of rigid material mounted on said disks and independently movable therewith toward and from the cutter, said rings collectively constituting a pressure roll which is movable bodily toward and 90 from the cutter by the swinging frame and is adapted to yield locally. 95

3. A machine of the character specified, comprising in its construction a rotary cutter having spirally arranged knives, a swinging frame 100 movable toward and from the cutter, a roll-supporting bar or axis mounted on said frame, a series of non-rotating disks mounted to move independently crosswise of said bar, a series of rings of rigid material mounted on said disks and independently movable toward and from the cutter, means for pressing said rings and disks independently and yieldingly toward the cutter, said rings collectively constituting a pressure roll which is movable bodily 105 toward and from the cutter by the swinging frame and is adapted to yield locally, and means for confining the disks upon the bar to prevent the local yielding of the pressure roll and thereby enable the machine to perform the operation of shaving. 110 115

4. In a machine of the character specified, a cutter-cylinder having the usual double spiral series of knives, and a peripheral guard-knife intersecting the angles of the spiral knives, 120 the said guard-knife being deflected alternately toward each end of the cylinder and extending across the spaces between the spiral knives, for the purpose set forth.

5. The combination of a series of independently yielding sections; a fixed central longitudinal flat bar or axis provided with a series of transverse cells or perforations each containing a spring, a spring-abutment, and a spring-actuated plunger; a corresponding series of disks located on the axis coincidently 130 with the said cells or perforations, each disk having a slot fitting closely to the sides of the axis but of a length greater than the width



thereof, the said disks serving as bearings; and a series of adjacent external annular rollers mounted to rotate on said bearings, each roller and disk being independently free  
5 to move transversely of the axis upon the application of external pressure against the restraining action of the contained spring.

6. The combination of a series of independently yielding sections; a fixed central longitudinal flat bar or axis provided with a series  
10 of transverse cells or perforations each containing a spring, a spring-abutment, and a spring-actuated plunger; a corresponding series of disks located on the axis coincidently  
15 with the said cells or perforations, each disk having a slot fitting closely to the sides of the axis but of a length greater than the width thereof, the said disks serving as bearings; a  
series of adjacent external annular rollers  
20 mounted to rotate on said bearings, each roller and disk being independently free to move

transversely of the axis upon the application of external pressure against the restraining action of the contained spring; and adjustable devices for supporting said section un-  
25 yieldingly, said devices comprising a series of idler rollers each hung in a lever and pressed against the face of a corresponding annular roller and disk by the simultaneous action of a series of screws having geared  
30 heads operated by an endless worm-shaft, the said screws acting against the levers through interposed safety springs and plungers.

In testimony whereof I have signed my name to this specification, in the presence of  
35 two subscribing witnesses, this 28th day of January, A. D. 1895.

JOHN BOYLE.

Witnesses:

A. D. HARRISON,  
ROLLIN ABELL.