

E. F. BUTLER.
AUTOMATIC SHEARING ATTACHMENT.
APPLICATION FILED MAR. 18, 1911.

1,018,296.

Patented Feb. 20, 1912.

2 SHEETS—SHEET 1.

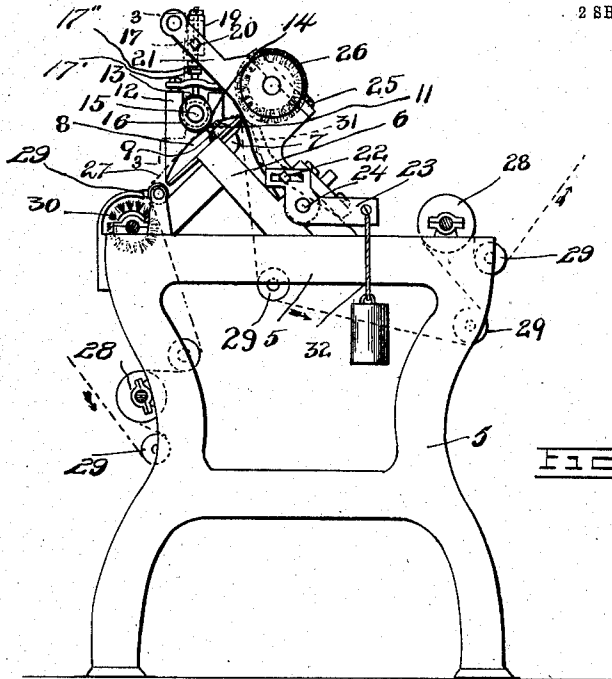


Fig. 1.

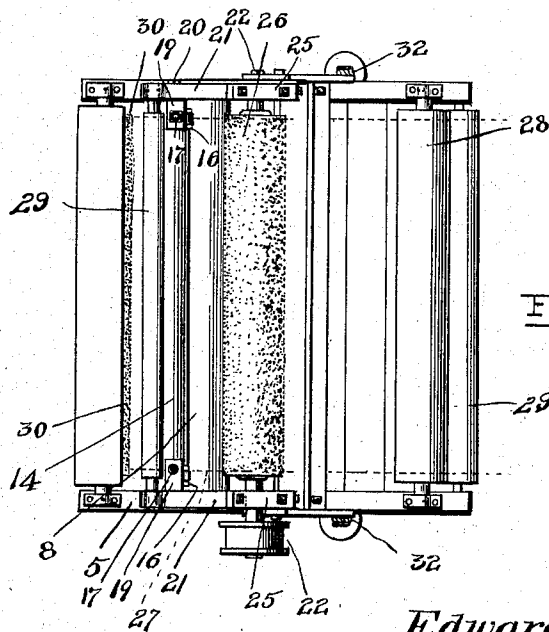


Fig. 2.

Witnesses

Thos. H. Knox,

[Signature]

Inventor
Edward F. Butler

By *Victor J. Evans*

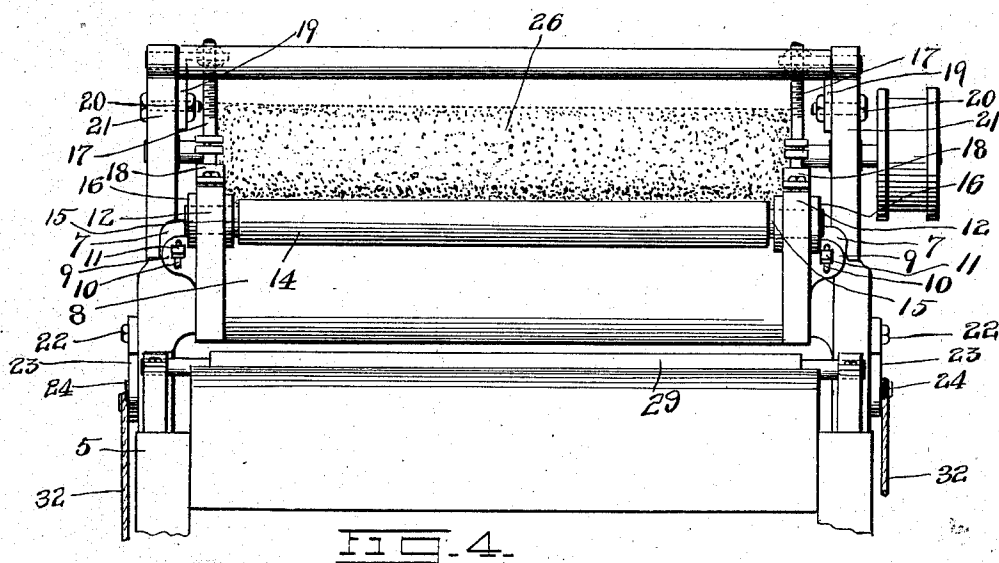
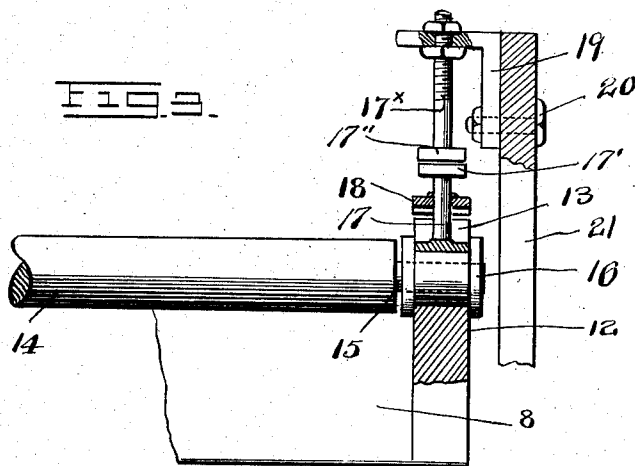
Attorney

E. F. BUTLER.
 AUTOMATIC SHEARING ATTACHMENT.
 APPLICATION FILED MAR. 18, 1911.

1,018,296.

Patented Feb. 20, 1912.

2 SHEETS—SHEET 2.



Witnesses

Thos. F. Knox,

T. O. Parker.

Inventor

Edward F. Butler

By *Victor J. Evans*

Attorney

UNITED STATES PATENT OFFICE.

EDWARD F. BUTLER, OF CAVENDISH, VERMONT.

AUTOMATIC SHEARING ATTACHMENT.

1,018,296.

Specification of Letters Patent.

Patented Feb. 20, 1912.

Application filed March 18, 1911. Serial No. 615,284.

To all whom it may concern:

Be it known that I, EDWARD F. BUTLER, a citizen of the United States, residing at Cavendish, in the county of Windsor and State of Vermont, have invented new and useful Improvements in Automatic Shearing Attachments; of which the following is a specification:

The invention relates to a cloth shearing machine, and more especially to the class of automatic attachments for lifting the cutting mechanism of cloth shearing machines.

In the operation of cloth shearing machines, it is customary to sew or otherwise secure the ends of several pieces of goods together, for forming a long run or strip and for facilitating the continuous feed of the consecutive pieces of goods through the machine, and as the several end-uniting seams approach the shearing cutters or cutter, the latter necessarily have to be lifted or raised from the guide rest to permit the additional thickness of cloth at the seam portions to pass, without being cut through the cloth. This lifting may only be necessary at predetermined periods of time on a full length web of cloth. Heretofore, it has been the practice to effect the lifting of the shearing cutters for allowing seams to pass by manual manipulation, that is to say, the raising by hand of the said cutters. Thus, it will be seen that it requires the attention of an attendant.

The primary object of the invention is the provision of an attachment wherein the shearing cutters may be automatically raised for the free passage of the end-connecting seam of the cloth and similar excrescences in the fabric, without interfering or contacting with the cutters or the readjustment or correction of the running of fabric, thereby obviating the necessity of the attendance of an operator for this particular purpose.

Another object of the invention is the provision of a device of this character which will automatically raise or lift the cutting mechanism of the machine, so that if any hard substance should get caught in the length of fabric, the blade will have been shifted to allow the hard substance to pass the same without touching it, thus preventing injury to the said cutting mechanism, and at the same time to the cloth.

A further object of the invention is the provision of a machine of this character in which the cutting mechanism will be auto-

matically shifted, whereby the end-connecting seam will freely pass the cutter without interference or contact therewith, thus assuring smooth travel of the cloth and obviating injury to the cutter.

A still further object of the invention is the provision of a machine of this character in which the cloth will be held smooth and prevented from wrinkling during its travel, and at the same time the cutter will be automatically shifted for escaping the increased thicknesses in the cloth or overlapped seams thereof, thereby assuring the accurate and positive operation of the shearing machine.

A still further object of the invention is the provision of a machine of this character which is simple in construction, thoroughly reliable and efficient in operation, and inexpensive in manufacture.

With these and other objects in view, the invention consists in the construction, combination and arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and pointed out in the claims hereunto appended.

In the drawings: Figure 1 is a side elevation of a shearing machine with the attachment mounted thereon. Fig. 2 is a top plan view thereof. Fig. 3 is a sectional view on the line 3—3 of Fig. 1. Fig. 4 is a front elevation of the machine with the attachment thereon.

Similar reference characters indicate corresponding parts throughout the several views of the drawings.

Referring to the drawings by numerals, the cloth shearing machine comprises a main frame 5 of the usual or suitable construction as employed in machines for supporting the operating parts thereof, and 6 the brackets which rise from opposite sides of the frame 5, the brackets being in alinement with each other and are provided with bearing or rest extensions 7, on which is mounted an oval-shaped guide beam or bar 8, the latter being provided with laterally extending wings 9 provided with suitable elongated slots, through which are passed threaded bolts 10 fixed in and rising from the bearing or rest extensions 7 and carry the usual winged locking nuts 11, whereby the said oval-shaped beam or bar 8 may be adjusted when the occasion requires, and over this beam or bar is drawn the fabric in the direc-

tion as indicated by the arrows shown in Fig. 1 of the drawings for presentation of its pile or nap to the shearing or cutting mechanism, as will be hereinafter more fully described.

Formed in opposite ends of the oval-shaped guide bar or beam 8 are upright wing castings 12, the same being provided with central guide slots 13 opening through their free or upper edges, and in which is loosely journaled a gage roller 14, the truncated ends 15 of which are journaled in eyes 16 formed on the ends of vertical stems 17, the same being loosely passed through straps or bridge pieces 18 suitably fixed to the upper edges of the said wing castings 12. These vertical stems 17 are provided with striking heads 17' in alinement with similar heads 17'' on adjusting screws 17* which are connected with L-shaped brackets 19, the latter being connected by means of pivot pins 20 with the frame of the cutter mechanism, as will be hereinafter more fully described.

The frame of the cutter mechanism comprises a pair of arms 21, the same being adjustably connected by means of set screws 22 to rocking supports 23, the latter being pivoted, as at 24, to the brackets 6 on the main frame, the arms 21 being formed with split bearings 25, in which is journaled the shearing cylinder 26 which is arranged for operation in the ordinary well-known manner for shearing the pile or nap upon one face of the cloth 27 passing over the guide beam or bar 8, the cloth 27 being trained over feed or draft rolls 28, and also over guide rollers 29 which are suitably journaled in the main frame 5 of the machine.

Suitably journaled on the main frame 5 of the machine is a cylindrical brush 30, over which passes the cloth for the brushing of the same before sheared of its nap or pile, as the said cloth is directed through the machine.

Connected in the usual manner to the arms 21 of the frame of the cutting mechanism is a ledger blade 31, the operation thereof being well known. As heretofore stated, the brackets 19 are connected by pivots 20 to the arms 21 of the frame of the shearing mechanism, so that it will be obvious that when the cloth 27 passes over the guide beam or bar 8 and the said cloth is thickened at certain points thereof or is provided with overlapped seams when they contact with the gage roller 14, thus displacing the same and through the medium of the adjusting screws 17 connected with the arms 21 of the shearing frame, the latter will be caused to swing in one direction, thereby retreating the shearing cylinder 26 from the cloth, and also the ledger blade 31 will be simultaneously retreated, thereby permitting the free passage of the end-connecting seams or

the thickened portions of the fabric or cloth 27 through the machine, without contacting with the said ledger blade and shearing cylinder.

Connected with the rocking supports are 70 weighted counter-balancing arms or pendulums 32 for equalizing the weight of the shearing cylinder and ledger blade carried by the frame supporting the same, it being understood that these weighted counter-balancing arms or pendulums 32 will assist in 75 the automatic raising of the shearing frame for retracting the ledger blade 31, upon the gage roller 14 contacting with overlapped or end connecting seams or thickened portions of the fabric, when passing over the guide beam or bar 8, and will prevent the lowering of the said shearing frame too quickly, so as to enable the overlapped or end connecting seams or thickened portions of the fabric to 80 pass the ledger blade 31, without any possibility of the said ledger blade cutting the same. It will be noted that the frame may be adjusted closer to or the desired distance away from the guide beam 8 by means of the set screws 22, thereby regulating the cutting action of the shearing cylinder and ledger blade upon the cloth 27 directed 85 through the machine. Also, it is possible to adjust the gage roller 14 by means of the adjusting screws 17* relative to the guide beam or bar 8.

It is thought that the automatic operation of the lifting mechanism or attachment for the shearing machine will be clearly obvious, and therefore a more extended explanation of the same has been omitted.

What is claimed is:

1. The combination with a shearing machine having a guide bar, over which is adapted to pass cloth, of shearing mechanism movably connected with said bar, means acted upon by the cloth and connected with said mechanism for automatically shifting the same away from such cloth when striking an obstruction therein, and means coöperative with said mechanism for holding it lifted for a predetermined period of time to permit the obstructing portion of such cloth to pass under the mechanism 115 without the stopping of the machine.

2. The combination with a shearing machine having a cloth guiding-bar, of cutting mechanism adapted for movement toward and away from said bar, mechanism acted upon by striking the obstructing portions in a piece of cloth traveling over the bar to automatically shift said cutting mechanism away from said bar, and means for balancing said mechanism to permit the obstructing portions of the cloth to pass under the cutting mechanism without the stopping of the machine.

3. In an attachment of the class described, the combination with a shearing machine, 120 125 130

of a guide bar supported upon said machine and over which is adapted to run cloth, a gage roller slidably supported by said bar and adapted for contact with such cloth, a swinging cutting mechanism supported by said machine and having connection with said gage roller, whereby on the displacement of the gage roller by contact with obstructing portions in the cloth, the said cutting mechanism will simultaneously move to enable the obstructing portions in the cloth to pass under the cutting mechanism without the stopping of the machine and counterbalancing means coöperative with the cutting mechanism for momentarily sustaining the latter elevated when raised.

4. In an attachment of the class described, the combination with a shearing machine, of a guide bar supported upon said machine and over which is adapted to run cloth, a gage roller slidably supported by said bar and adapted for contact with such cloth, a swinging cutting mechanism supported by said machine and having connection with said gage roller, whereby on the displacement of the gage roller by contact with obstructing portions in the cloth, the said cutting mechanism will simultaneously move to enable the obstructing portions in the cloth to pass under the cutting mechanism without the stopping of the machine, counterbalancing means coöperative with the cutting mechanism for momentarily sustaining the latter elevated when raised, and means for adjusting the cutting mechanism.

5. In an attachment of the class described, the combination with a shearing machine, of a guide bar supported upon said frame, and over which is adapted to run cloth, a gage roller slidably supported by said bar and adapted for contact with such cloth, a swinging cutting mechanism supported by said frame and having connection with said gage roller, whereby on the displacement of the gage roller, the said cutting mechanism will simultaneously move therewith, means for adjusting the cutting mechanism toward

and away from the said bar, and weight means coöperative with the cutting mechanism for counter-balancing the same.

6. In an attachment of the class described, the combination with a shearing machine, of a guide bar supported upon said frame, and over which is adapted to run cloth, a gage roller slidably supported by said bar and adapted for contact with such cloth, a swinging cutting mechanism supported by said frame and having connection with said gage roller, whereby on the displacement of the gage roller, the said cutting mechanism will simultaneously move therewith, means for adjusting the cutting mechanism toward and away from the said bar, weight means coöperative with the cutting mechanism for counterbalancing the same, and means for independently adjusting the gage roller toward and away from the said bar.

7. In an attachment of the class described, the combination with a shearing machine, of a guide bar supported upon said machine and over which is adapted to run cloth, a gage roller slidably supported by said bar and adapted for contact with such cloth, a swinging cutting mechanism supported by said machine and having connection with said gage roller, whereby on the displacement of the gage roller by contact with obstructing portions in the cloth, the said cutting mechanism will simultaneously move to enable the obstructing portions in the cloth to pass under the cutting mechanism without the stopping of the machine, means for adjusting the cutting mechanism, and means coöperating with said cutting mechanism for momentarily balancing the same when lifted from the cloth to permit the obstructing portions of the cloth to clear the cutting mechanism.

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

EDWARD F. BUTLER.

Witnesses:

CHAS. E. MANDIGO,
JAMES E. GAY.