

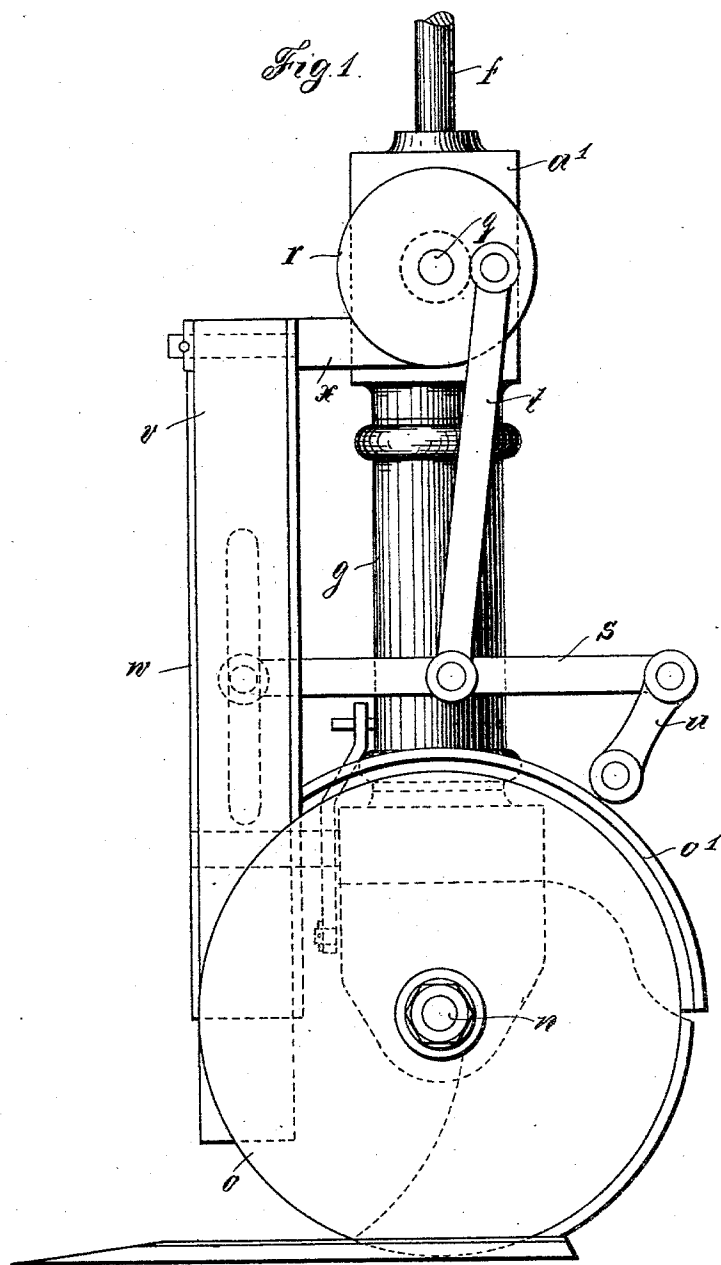
(No Model.)

2 Sheets—Sheet 1.

J. PHILIPPSOHN.
CLOTH CUTTING MACHINE.

No. 562,657.

Patented June 23, 1896.



Witnesses:

Arthur Wallker.

Emil Kayser.

Inventor:
Jacob Philippsohn

by *Robert Heifler*
Attorney

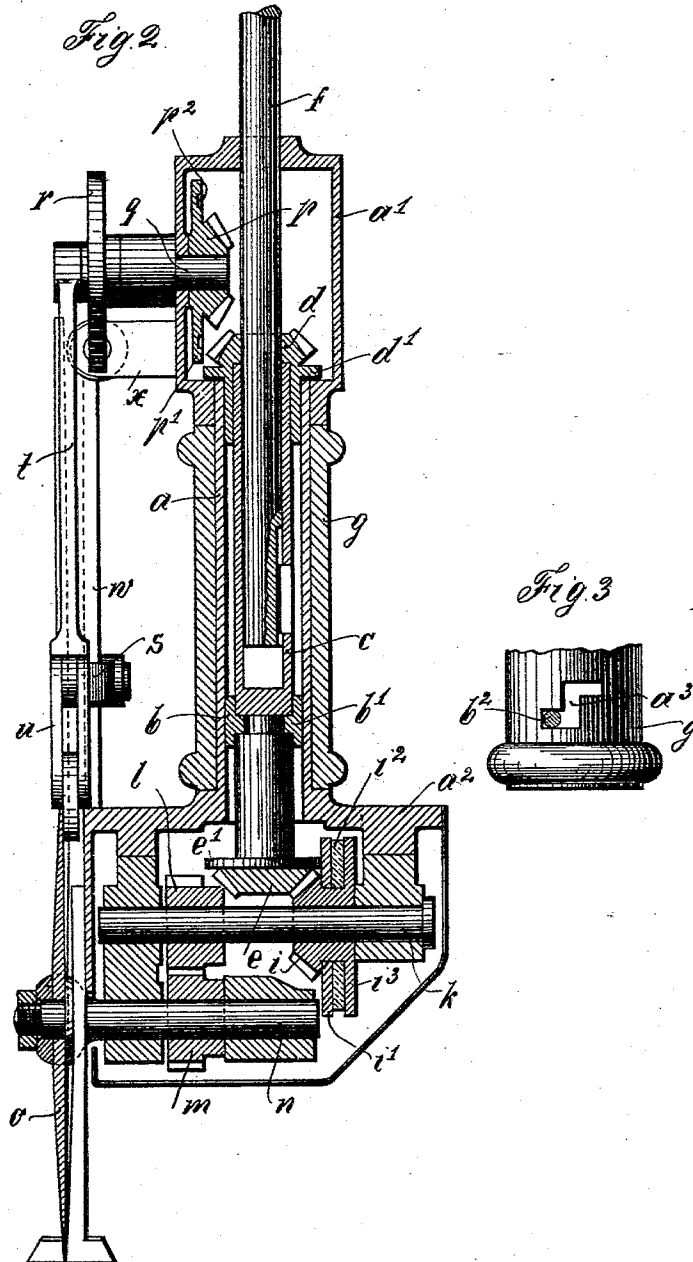
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Arthur Walther.
Emil Kaysor.

Inventor:
Jacob Philippsohn
by *Robert Dwyler*
Attorney

UNITED STATES PATENT OFFICE.

JACOB PHILIPPSOHN, OF BERLIN, GERMANY.

CLOTH-CUTTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 562,657, dated June 23, 1896.

Application filed August 9, 1895. Serial No. 558,750. (No model.)

To all whom it may concern:

Be it known that I, JACOB PHILIPPSOHN, a subject of the King of Prussia, German Emperor, and a resident of Berlin, in the Kingdom of Prussia, German Empire, have invented a new and useful Improved Cloth-Cutting Apparatus, of which the following is an exact specification.

This invention refers to cloth-cutting machines in which a number of superposed layers of stuff is cut by means of a rotary cutter. My improvements in machines of said sort relate to the combination of said rotary cutter with a vertically-reciprocating cutter having its cutting edge on its lower end. This reciprocating cutter is arranged adjacent to the rotary cutter and moves in a plane parallel to the plane of rotation of said rotary cutter.

The purpose of my improvements is to do away with the necessity of raising the layer of stuff against the vertical front portion of the rotary cutter at the end of each cut, and to effect in lieu thereof the cutting of the remaining uncut portions (which, in consequence of the circular shape of the rotary cutter, increase in length from the top layer to the bottom layers) by means of said second cutter.

In order to make my invention more clear, I refer to the accompanying drawings, in which similar letters denote similar parts throughout the different views, and in which—

Figure 1 is a front view of my improved cloth-cutting apparatus. Fig. 2 is a vertical section through the same and showing the left-hand portion thereof; and Fig. 3 is an outer view of a portion of the handle, also seen from the right-hand side with regard to Fig. 1.

The tube *a*, which connects the upper casing *a'* with the lower casing *a''*, embraces a ring *b*, furnished with an inner flange *b'*. Said flange takes into a corresponding groove of a sleeve *c*, carrying at its upper end the bevel-wheel *d*, and at its lower end the bevel-wheel *e*. The sleeve *c* may be displaced upon the shaft *f*, with which it is connected by feather and groove. For that purpose the ring *b* is furnished with a pin *b''*, which takes through a cut-out *a'''* of Z-like configuration provided in the tube *a* and the handle *g*. Owing to the special configuration of said cut-out, the pin *b''*, and with it the sleeve *c*, with its two bevel-wheels, may be adjusted and fixed in two positions.

If the ring *b* is in the position shown in the drawings, the bevel-wheel *e* gears with a similar wheel *i*, secured to the shaft *k*. The latter carries, moreover, a cog-wheel *l*, which is in gear with a cog-wheel *m*, fixed to the shaft *n*. This shaft projects through the front wall of the casing *a''*, and operates the rotary cutter *o*. If, however, the sleeve *c* is in its upper position, the bevel-wheel *d* gears with a similar wheel *p*, fixed to the shaft *q*. The latter carries at its front end the crank-disk *r*, which is connected with the lever *s* by the connecting-rod *t*. Said lever is at one end hinged to the link *u*, attached to the cap *o'* for the rotary cutter, and is at the other end connected with the vertically-reciprocating cutter *v*, which latter is arranged within a guide *w*, hinged to a projecting arm *x* of the casing *a'*. The pin or bolt connecting the lever *s* with the vertically-reciprocating cutter *v* passes through a slot of the guide *w*. It will thus be seen that there is a coupling established either between the bevel-wheels *e* and *i*, or between the bevel-wheels *d* and *p*, and that there is operated in the first case the rotary or main cutter *o*, and in the second case the reciprocating or auxiliary knife *v*.

As the shaft *f* does not cease rotating during the shifting of the sleeve *c*, there is a possibility that the teeth of one or the other pair of wheels may get broken on coming in contact with each other. In order to obviate such an occurrence, I have devised the following arrangement:

The naves of the bevel-wheels in question are furnished with frictional disks *p'*, *d'*, *e'*, and *i'*, respectively, one or the other pair of which comes on the displacement of the sleeve *c* in contact prior to the contact between the respective bevel-wheels, and the bevel-wheels to be driven are thus caused to rotate before said latter contact occurs. The frictional disks to be driven are, as a matter of course, of greater diameter than the driving-disks, and the rotation of the former commences thus with a comparatively slow velocity, but becomes quickly faster and faster on the growing approach of the respective two bevel-wheels. In a short time the rotary velocity of these two wheels is exactly the same, and they may then be brought into gear with each other without any fear of break.

The frictional disks need not indispensably be fixed to, or made integrally with, the naves

of the bevel-wheels, but may be loosely arranged upon said naves, and combined with a loose or fast india-rubber disk, such as i^2 , supported by an auxiliary frictional disk i^3 .
 5 The latter is firmly connected with the nave of the respective bevel-wheel, and, further, the frictional surface of the disks p' , &c., need not be perfectly even, but may have an annular groove, such as p^3 , annihilating the
 10 friction as soon as the respective bevel-wheels are in proper gear.

Having thus fully described the nature of this invention, what I desire to secure by Letters Patent of the United States is—

15 1. In a cloth-cutting machine, the combination with the rotary cutter, and means for operating the same, of a vertically-reciprocating cutter having its cutting edge on its lower end; such reciprocating cutter being
 20 adjacent to, and moving in a plane parallel to the plane of rotation of the rotary cutter, and means for operating such reciprocating cutter independently of the rotary cutter, as set forth.

25 2. In a cloth-cutting machine, the combination with the rotary cutter, and means for operating the same, of a vertically-reciprocating cutter having its cutting edge on its lower end; such reciprocating cutter being
 30 adjacent to, and moving in a plane parallel to the plane of rotation of the rotary cutter, and means for connecting said reciprocating cutter with, and disconnecting it from, the driving mechanism for said rotary cutter, as set forth.

35 3. In a cloth-cutting machine, the combination with the rotary cutter, and means for operating the same, of a vertically-reciprocating cutter having its cutting edge on its lower end; such reciprocating cutter being
 40 adjacent to, and moving in a plane parallel to the plane of rotation of the rotary cutter, and means for connecting each of said cutters with, and disconnecting each of them from, their common driving mechanism, as set forth.

45 4. In a cloth-cutting machine, the combination with the rotary cutter, and means for operating the same, of a vertically-reciprocating cutter having its cutting edge on its lower end; such reciprocating cutter being
 50 adjacent to, and moving in a plane parallel to the plane of rotation of the rotary cutter, and means for connecting said reciprocating cutter with, and simultaneously therewith disconnecting said rotary cutter from, the common driving-shaft for said two cutters, as set forth.

55 5. In a cloth-cutting machine, the combination with the rotary cutter, and means for operating the same, of a vertically-reciprocating cutter having its cutting edge on its lower end; such reciprocating cutter being
 60 adjacent to, and moving in a plane parallel to the plane of rotation of the rotary cutter; said two cutters being connected by suitable intermediate mechanisms to horizontal shafts

carrying each a bevel-wheel; a vertical sleeve arranged between said shafts, said sleeve embracing, and being coupled by feather and
 70 groove with, the main shaft of the apparatus; means for displacing said sleeve upon said main shaft, and for fixing it in either of its end positions, as set forth.

6. In a cloth-cutting machine, the combination with the rotary cutter, and means for operating the same, of a vertically-reciprocating cutter having its cutting edge on its lower end; such reciprocating cutter being
 75 adjacent to, and moving in a plane parallel to the plane of rotation of the rotary cutter, and being connected by suitable intermediate mechanisms to a horizontal shaft carrying a bevel-wheel; a longitudinally-displaceable sleeve arranged rectangularly to said horizontal shaft upon the vertical main shaft of
 80 the machine, and carrying also a bevel-wheel adapted to gear with said first bevel-wheel; each of said bevel-wheels being combined with a frictional disk, for the purpose as described.

7. In a cloth-cutting machine, the combination with the rotary cutter, and means for operating the same, of a vertically-reciprocating cutter having its cutting edge on its lower end; such reciprocating cutter being
 95 adjacent to, and moving in a plane parallel to the plane of rotation of the rotary cutter; said two cutters being connected by suitable intermediate mechanisms to horizontal shafts carrying each a bevel-wheel; a sleeve arranged between said shafts, and carrying also at each end a bevel-wheel adapted to gear with the bevel-wheels of the said shafts; each of said bevel-wheels being combined
 100 with a frictional disk, as set forth.

8. In a cloth-cutting machine, the combination with the rotary cutter, and means for operating the same, of a vertically-reciprocating cutter having its cutting edge on its lower end; such reciprocating cutter being
 110 adjacent to, and moving in a plane parallel to the plane of rotation of the rotary cutter, said two cutters being connected by suitable intermediate mechanisms to horizontal shafts carrying each a bevel-wheel; a vertical sleeve arranged between said shafts, and carrying at each end a bevel-wheel adapted to gear with the bevel-wheels of the said shafts; each of said bevel-wheels being combined
 115 with a frictional disk; said sleeve embracing, and being coupled by feather and groove with the main shaft of the apparatus; means for displacing the said sleeve upon said main shaft, and for fixing it in either of its end
 120 positions, as set forth.

In testimony whereof I have signed this specification in the presence of two subscribing witnesses.

JACOB PHILIPPSOHN.

Witnesses:

R. HERPICH,
 C. BROCKHAUS.