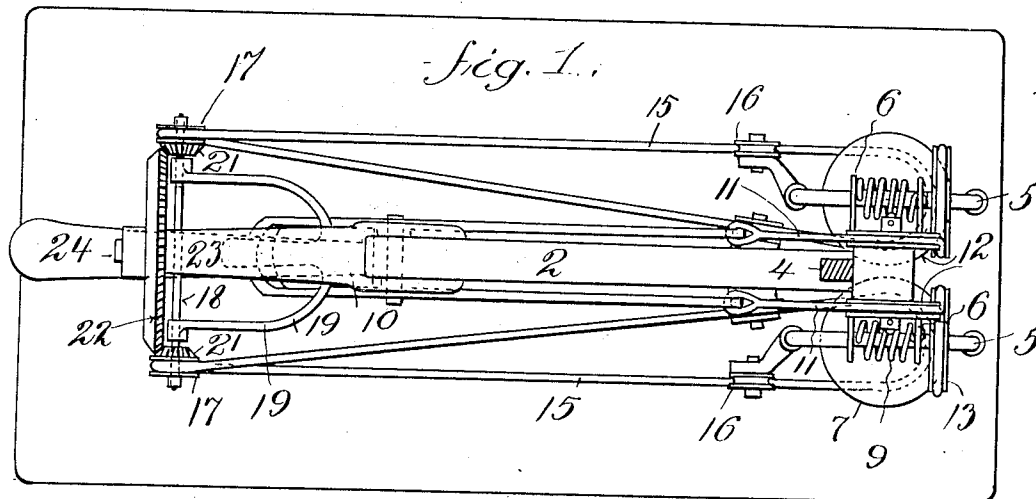
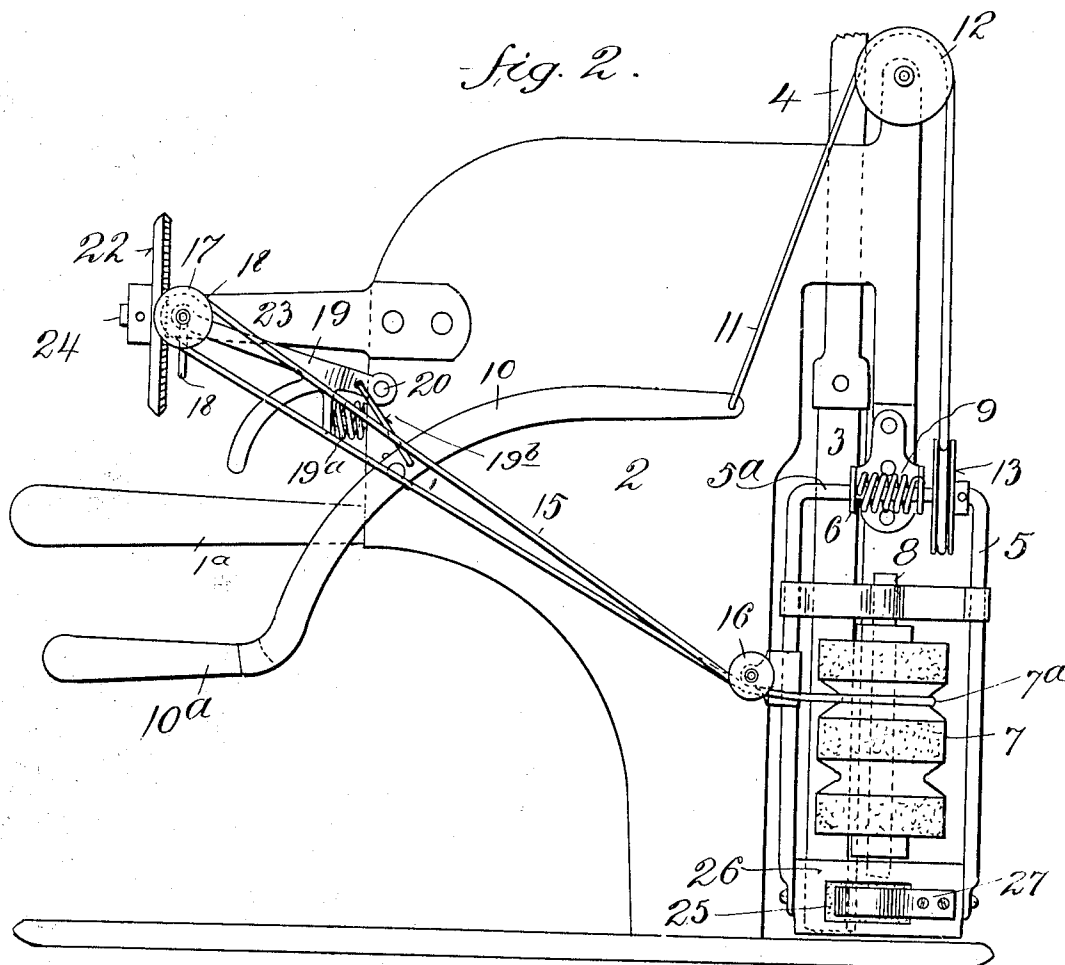


A. A. SIMON.
 MEANS FOR SHARPENING KNIVES IN CLOTH CUTTING MACHINES.
 APPLICATION FILED FEB. 24, 1909.

927,689.

Patented July 13, 1909.

2 SHEETS—SHEET 1.



Witnesses:
[Signature]
 Harry J. Wright

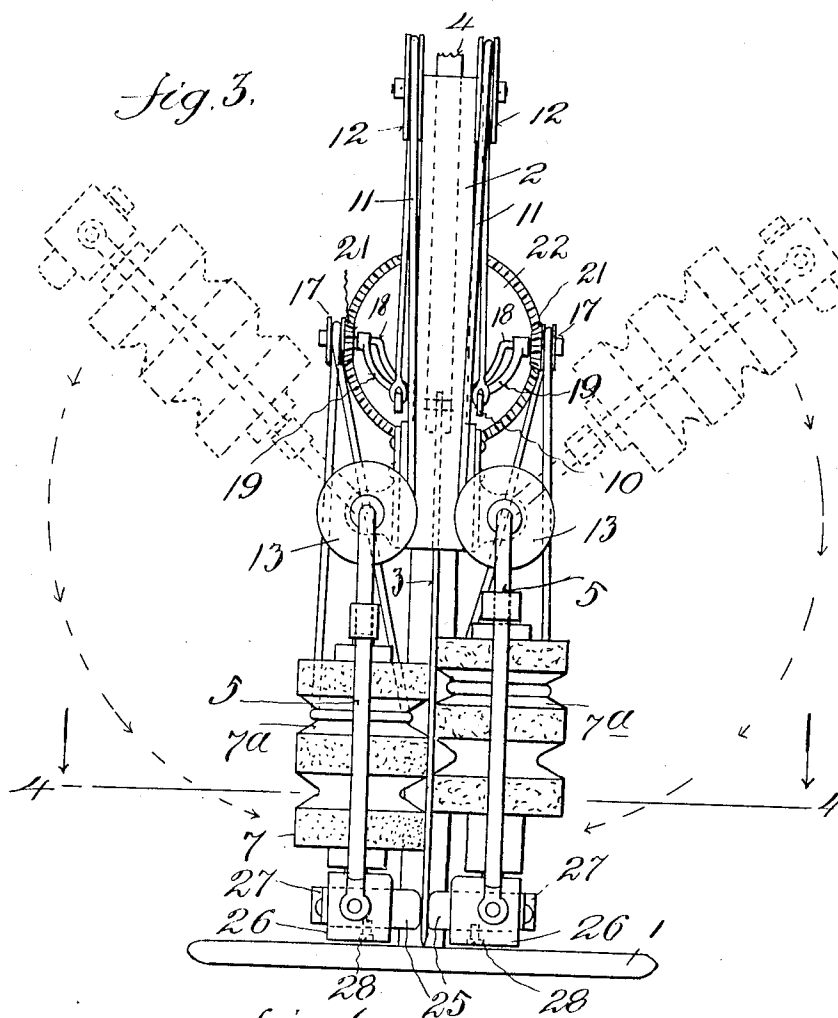
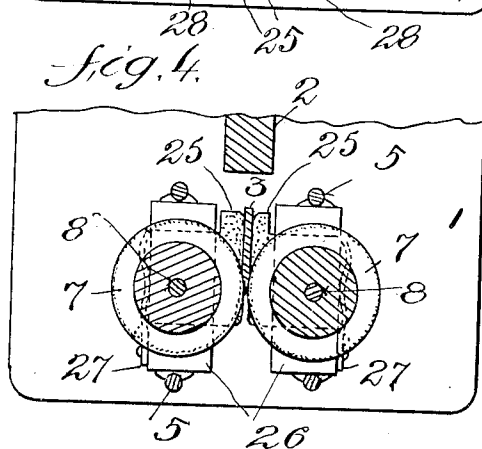
Inventor
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 By his Attorney
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Witnesses:
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UNITED STATES PATENT OFFICE.

ABRAHAM A. SIMON, OF NEW YORK, N. Y.

MEANS FOR SHARPENING KNIVES IN CLOTH-CUTTING MACHINES.

No. 927,689.

Specification of Letters Patent.

Patented July 13, 1909.

Application filed February 24, 1909. Serial No. 479,754.

To all whom it may concern:

Be it known that I, ABRAHAM A. SIMON, a subject of the Czar of Russia, and resident of New York city, borough of Manhattan, in the county of New York and State of New York, have invented certain new and useful Improvements in Means for Sharpening Knives in Cloth-Cutting Machines, of which the following is a specification.

The object of my invention is to provide simple and effective means for sharpening reciprocative knives in cloth cutting machines, while permitting the sharpening means to be removed from the knife and maintained out of the way of the cloth being cut and to be brought into co-action with the knife as required.

The invention comprises the novel details of improvement and combinations of parts that will be more fully hereinafter set forth and then pointed out in the claims.

Reference is to be had to the accompanying drawings forming part hereof, wherein,

Figure 1 is a plan view of a cloth cutting machine embodying my improvements; Fig. 2 is a side view thereof; Fig. 3 is a front view thereof, and Fig. 4 is a detail section on the line 4, 4, in Fig. 3.

Similar numerals of reference indicate corresponding parts in the several views.

The numeral 1 indicates a suitable base to which is attached an upright or standard 2 in any wellknown manner, and at 3 is a reciprocative knife shown connected with a driving rod 4 suitably guided and which may be operated by a motor connected with upright 2 in any wellknown manner. At 5 are suitable frames movably carried by upright 2, as by being pivotally supported at their upper ends in bearings 6 attached to upright 2 on opposite sides of knife 3, whereby said frames may swing toward and away from the knife, as indicated in full and dotted lines in Fig. 3. Within frames 5 are journaled rotary sharpening or grinding devices 7, which may be in the form of emery wheels of suitable shape which are journaled to rotate on shafts 8 carried by frames 5 in such position that when said frames are lowered said grinding wheels will rotate in contact with opposite sides of the knife 3 at its forward cutting edge, as the knife reciprocates, or when the knife is stationary. I have shown springs 9 connected with frames 5 and with bearings 6 in such manner as normally to tend to hold frames 5 in an elevated position away from

knife 3 and the cloth to be cut (see dotted lines in Fig. 3). Means are provided to at will swing frames 5 downwardly to cause wheels 7 to act upon knife 3. For this purpose I have shown a suitable lever 10 pivotally supported upon upright 2 and connected with frames 5, as by belts or cords 11, which are shown connected with the forked ends of lever 10, pass over pulleys 12 journaled on upright 2, and engage pulleys 13 secured to the horizontal upper parts 5^a of frames 5, whereby when lever 10 is lifted at its outer end 10^a the belts or cords 11 will be drawn down and by action upon pulleys 13 will cause frames 5 to swing downwardly (as in full lines in Fig. 3) to press the wheels 7 against knife 3, and when lever 10 is next released springs 9 will act to lift frames 5 and wheels 7 away from the knife.

To cause sharpening wheels 7 to rotate approximately only when in position for acting upon knife 3 said wheels are shown provided with grooves or pulley-like parts 7^a, receiving belts 15 that pass over the guide pulleys 16 carried by frames 5 and over driving pulleys 17, the ordinary slack in belts 15 permitting frames 5 to swing up and down. Pulleys 17 are shown carried by shaft 18 supported by an arm 19 pivotally carried by upright 2, as at 20, a spring 19^a acting upon arm 19 and upright 2 tending normally to raise said arm sufficiently to hold gears 21, that are secured to shaft 18, out of mesh with a gear 22. Gear 22 is shown journaled upon an arm 23, (as upon a stud 24 thereon) extending from upright 2, and may be rotated in any suitable manner, as from the motor that operates knife 3.

Normally spring 19^a will keep gears 21 out of mesh with gear 22 and springs 9 will keep frames 5 elevated. When it is desired to sharpen knife 3, lever 10 is operated to swing down frames 5 and bring the sharpening wheels 7 in contact with the knife, and arm 19 is then also operated, as by a link 19^b connecting arm 19 with lever 10, to place gears 21 in mesh with gear 22 whereupon belts 15 will be operated to rotate wheels 7. When lever 10 and arm 19 are released, frames 5 will rise and gears 21 will be raised and held out of mesh with gear 22.

To sharpen the lower end of knife 3 simultaneously with sharpening the forward or vertical cutting edge of the knife, I provide sharpening means, such as blocks of emery 25, which are supported in suitable bearings

or boxes 26 carried at the lower ends of frames 5, in which bearings or boxes the sharpening blocks 25 may slide toward the plane of the knife, and between which emery blocks the lower end of the knife can be reciprocated. The sharpening or emery blocks 25 are normally pressed toward the knife, as by springs 27 shown carried by boxes 26 and pressing against the outer ends of blocks 25 suitable pins or studs 28 carried by boxes 26 limiting the inward movement of blocks 25. The arrangement is such that when frames 5 are swung downwardly the lower edge of knife 3 will reciprocate between the sharpening blocks 25, which by being spring pressed in the direction of the blade will give back as required and make necessary contact with the blade edge. It will thus be seen that the vertical or forward cutting edge of the blade as well as its lower cutting edge may simultaneously be sharpened, the vertical edge by the rotation of wheels 7, and the reciprocation of knife 3 in contact with such wheels, and the lower edge of the blade by the reciprocation of the knife in contact with blocks 25.

The arrangements shown for operating belts 15 may be changed according to the construction of the cutting machine to which my improvements may be applied, and lever 10 need not be forked, as shown, as both belts or cords 11 may be connected to one end of said lever at one side of support 2. My invention is not limited to the details of construction and arrangements of parts shown and described, as the same may be varied within the scope of the appended claims without departing from the spirit thereof.

Having now described my invention what I claim is:—

1. In a cutting machine, the combination of a reciprocative knife, sharpening means located on opposite sides of the knife, and means for swinging said sharpening means downwardly and upwardly toward and away from opposite sides of the knife in a plane transverse to the cutting edge of the knife.

2. In a sharpening machine, the combination of a reciprocative knife, frames movably supported on opposite sides of the knife, to swing up and down in a plane transverse to the cutting edge of the knife, sharpening means carried by said frames, and means for moving said frames to carry the sharpening means into and out of engagement with the knife.

3. In a cutting machine, the combination of a reciprocative knife, frames movably supported at opposite sides of the knife, sharpening means carried by the frames to co-act with the longitudinal edge of the knife, and sharpening means carried by the frames below the first named sharpening means to engage the lower edge of the knife.

4. In a cutting machine the combination of a reciprocative knife, rotary sharpening

wheels, means for supporting said wheels on opposite sides of the knife, means for moving said wheels into and out of engagement with the knife, and knife sharpening means below and associated with said wheels for sharpening the lower edge of the reciprocative knife.

5. In a cutting machine, the combination of a reciprocative knife, frames movably supported on opposite sides thereof, to swing up and down in a plane transverse to the cutting edge of the knife, means to normally hold the frames out of the path of movement of the knife during work, rotary sharpening wheels carried by said frames to engage the knife, and means to operate said wheels.

6. In a cutting machine, the combination of a reciprocative knife, frames movably supported on opposite sides thereof, means to normally hold the frames out of the path of movement of the knife during work, rotary sharpening wheels carried by said frames to engage the knife, means to operate said wheels, and sharpening blocks carried by said frames below said wheels to engage the lower end of the knife.

7. The combination of a support, a reciprocative knife, frames movably carried by said support, to swing up and down in a plane transverse to the cutting edge of the knife, springs to normally hold said frames out of the path of the knife during work, means to at will swing said frames down into said path, rotary sharpening wheels carried by said frames, and means to rotate said wheels when in knife-sharpening position.

8. The combination of a support, a reciprocative knife, frames movably carried by said support, springs to normally hold said frames out of the path of the knife during work, means to at will swing said frames down into said path, rotary sharpening wheels carried by said frames, and sharpening means carried by said frames below said wheels to engage the lower edge of the knife.

9. The combination of a support, a reciprocative knife, frames movably carried by said support, springs to normally hold said frames out of the path of the knife during work, means to at will swing said frames down into said path, rotary sharpening wheels carried by said frames, bearings carried by said frames, sharpening blocks supported in said bearings, and means to maintain said blocks in operative position with respect to the lower edge of the knife.

10. In a sharpening machine, the combination of a reciprocative knife, a support, frames on opposite sides of the support, means to at will raise and lower said frames with respect to the knife, sharpening wheels journaled in said frames, separate belts on opposite sides of the support to separately rotate said wheels, pulleys for said belts, and means to at will simultaneously rotate said pulleys.

11. In a sharpening machine, the combination of a reciprocative knife, a support, swinging frames, means to at will swing said frames up and down with respect to the
 5 knife, sharpening wheels journaled in said frames, belts to rotate said wheels, pulleys for said belts, pinions connected with said pulleys, a gear to operate said pinions, and means to at will cause said gear to operate
 10 said pinions.

12. In a sharpening machine, the combination of a reciprocative knife, a support, frames, means to at will raise and lower said
 15 wheels journaled in said frames, belts to rotate said wheels, pulleys for said belts, pinions connected with said pulleys, an arm carrying said pulleys and pinions, a gear to co-act with said pinions, and a spring acting to
 20 normally keep said pinions and gear out of mesh.

13. A cutting machine comprising a recip-

rocative knife, frames movably supported on opposite sides of the knife, sharpening wheels journaled in said frames, a lever, a support
 25 for said frames and lever, and connections between the lever and frames for at will swinging the latter up and down.

14. In a cutting machine, the combination of a reciprocative knife, a support, frames
 30 pivotally carried by said support adjacent their upper ends, springs to normally hold said frames out of the path of the knife during work, a lever, means connecting said lever with said frames for at will lowering said
 35 frames, and sharpening means carried by said frames.

Signed at New York city, in the county of New York, and State of New York, this 15th day of February, A. D. 1909.

ABRAHAM A. SIMON.

Witnesses:

RALPH H. RAPHAEL,
 T. F. BOURNE.