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PATENTED DEC. 31, 1907.

C. VON PHILP.  
CUTTING MACHINE.

APPLICATION FILED JULY 22, 1907.

3 SHEETS—SHEET 2.

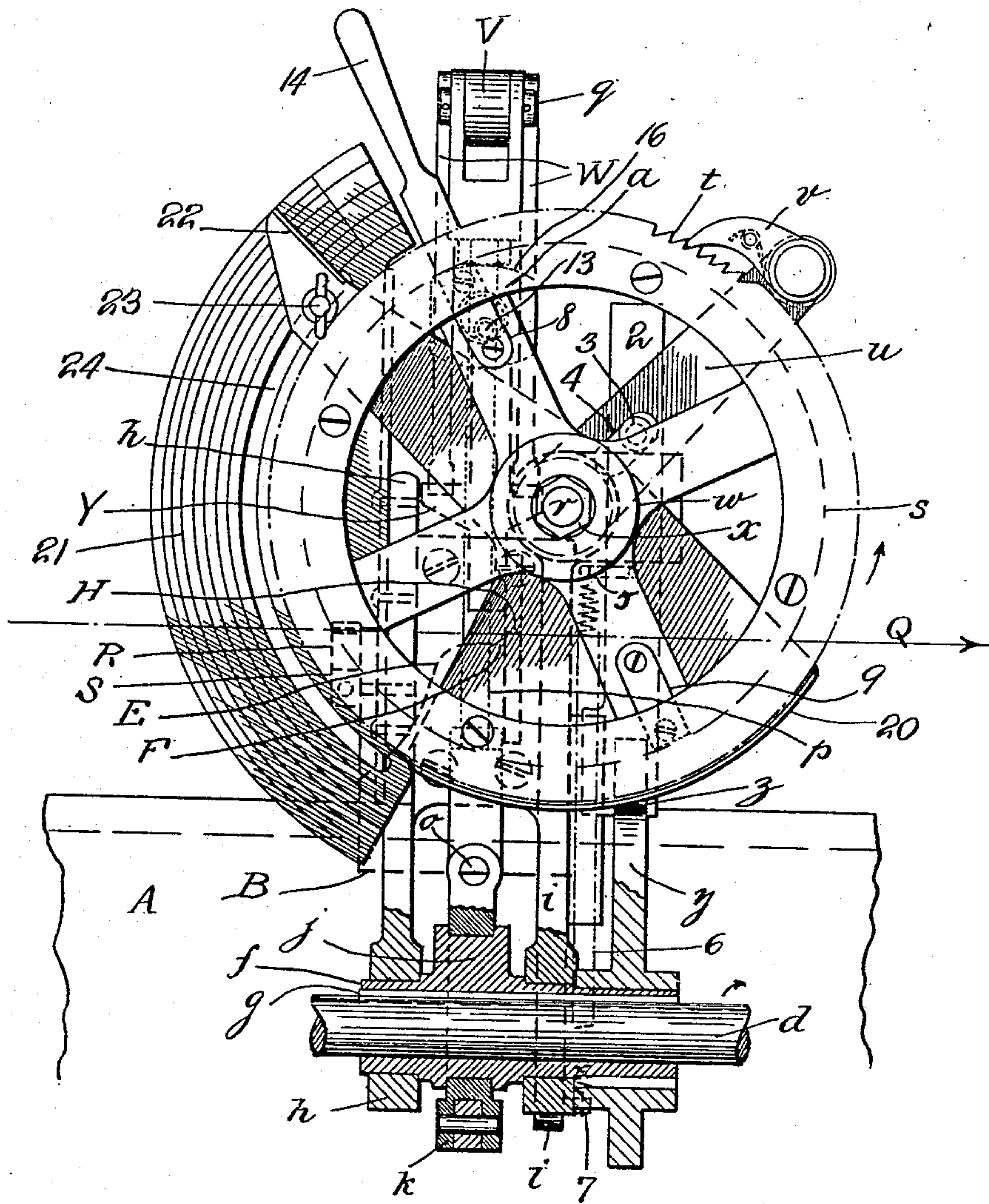


FIG. 2

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Inventor  
 Casimir von Philp  
 By his Attorneys  
 Currey, Brickinton & Ogden

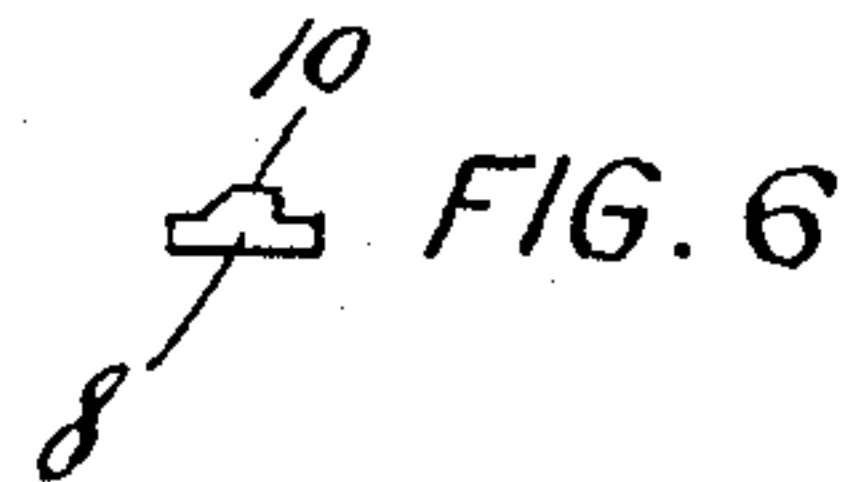
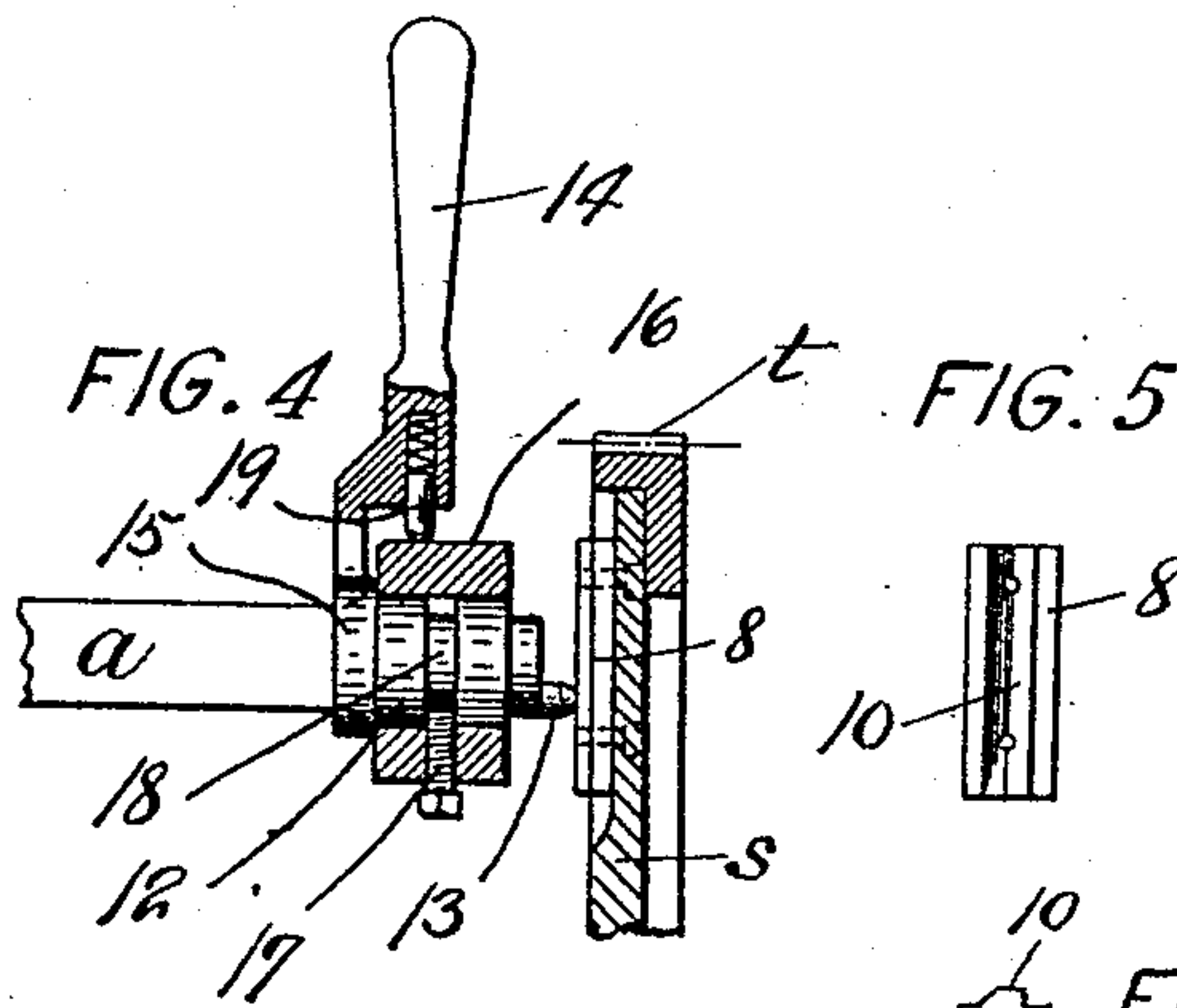
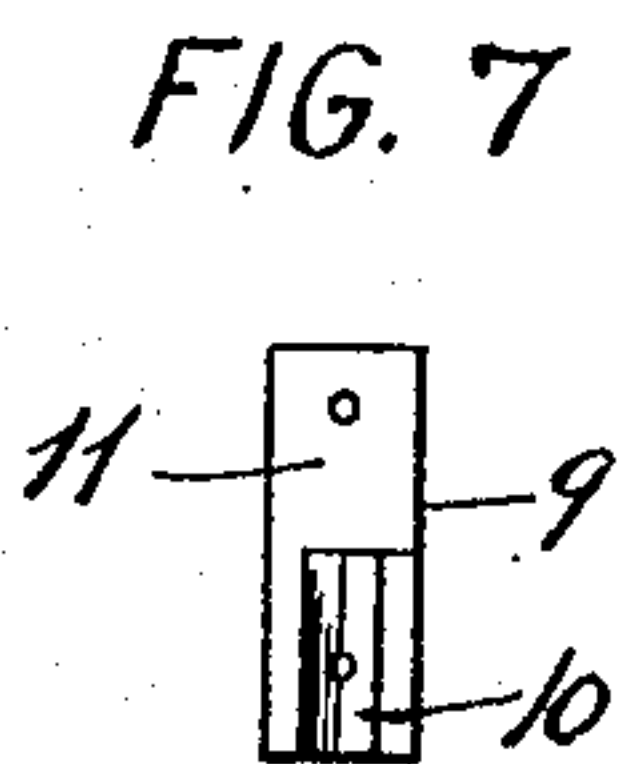
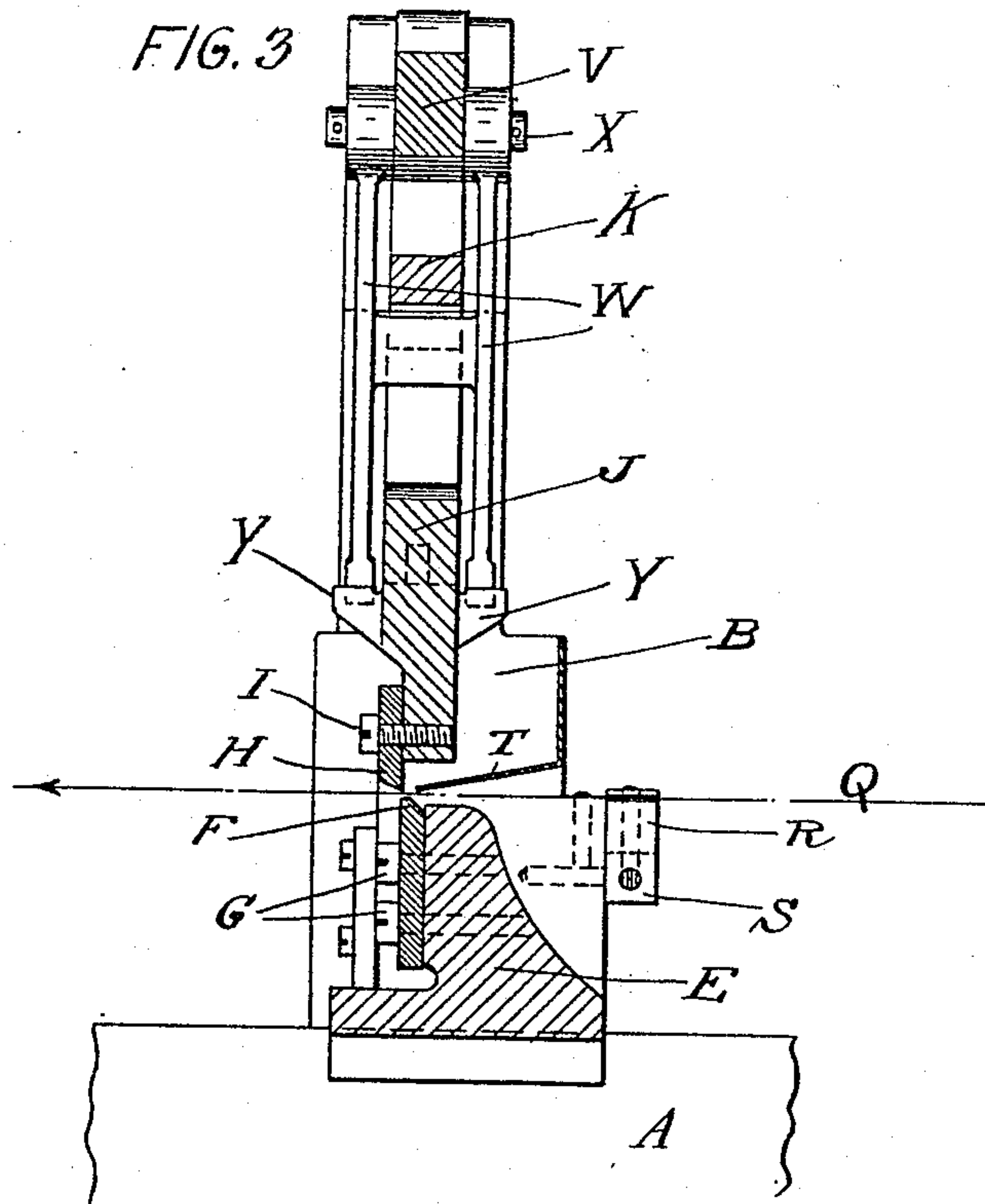
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# UNITED STATES PATENT OFFICE.

CASIMIR VON PHILP, OF NEW YORK, N. Y.

## CUTTING-MACHINE.

No. 875,103.

Specification of Letters Patent.

Patented Dec. 31, 1907.

Application filed July 22, 1907. Serial No. 384,879.

*To all whom it may concern:*

Be it known that I, CASIMIR VON PHILP, a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Cutting-Machines, of which the following is a specification accompanied by drawings.

This invention relates to cutting machines, more particularly to devices adapted to be fitted to special printing presses printing on a continuous strip or web of material, in which it is necessary to cut the strip of material for each impression, or for any odd or even number of impressions desired.

The objects of the invention are to improve upon the construction of such cutting devices and enable the strip of material to be automatically cut for any given number of impressions.

Further objects of the invention will hereinafter appear and to these ends the invention consists of a cutting machine for carrying out the above objects embodying the features of construction, combinations of elements and arrangement of parts having the general mode of operation substantially as hereinafter fully described and claimed in this specification and shown in the accompanying drawings, in which,—

Figure 1 is a side elevation of the machine partly in section; Fig. 2 is an end elevation partly in section; Fig. 3 is a transverse vertical sectional view on the line 3—3 of Fig. 2 looking in the direction of the arrows; Fig. 4 is a detail view partly in section of the detachable head and eccentric pin on the pusher bar; Fig. 5 is a detail face view of one of the cams on the ratchet wheel; Fig. 6 is an end view of Fig. 5; Fig. 7 is a detail face view of the other cam on the ratchet wheel.

Referring to the drawings, A represents the bed of the press, to which the frame B of the cutting device is attached in any suitable manner, as for instance by the cross piece C and bolts D. The portion E of the frame forms a holder for the lower knife F, which is suitably secured thereto as by means of the bolts or screws G. The upper knife H is suitably secured as by means of screws I to the cross head or slide J guided vertically in the frame B. The cross head or slide J is suspended from the cross piece K by means of the retracting springs L connected to the adjustable screws O for regulating the ten-

sion of the springs. In the drawings the cross head or slide is shown in its uppermost position, bearing against the adjustable screws P which serve to limit the back stroke. The strip or web of material Q, which may be a strip of paper, is continuously fed through the paper guide R carried by the brackets S and underneath the stripper T secured to the frame of the machine.

Pivoted at U on the top of the frame is an operating lever V, carrying intermediate of its length a trigger W pivoted at X to the lever and adapted to engage lugs or projections Y on the cross head or slide J, but normally retracted out of engagement with said lugs by means of the spring Z connected to the trigger and to the lever.

A pusher bar *a* is pivoted on the frame by means of a pin and slot connection at *b*, and is suitably guided by the frame in a horizontal direction. This pusher bar is provided with a roller *c* at its outer end adapted to bear against the trigger W when the bar *a* is pushed forward in the direction of the trigger. The lower end of said trigger is brought into engagement with the lugs Y so that downward movement of the operating lever V will force the cross head or slide J downward, thereby severing the web of material between the knives H and F. The operating lever V is adapted to be moved up and down with the same speed as the impressions made by the press, and suitable operative connections are provided for actuating the lever V and for automatically actuating the pusher bar *a*.

The cutter or driving shaft *d* is adapted to rotate in the direction of the arrow *e*, Fig. 1, and is provided with a sleeve *f* suitably keyed thereto by means of the key *g*. The sleeve *f* with its shaft are supported in the shaft brackets *h* and *i* connected to the frame of the machine, and the shaft is provided with an eccentric *j* having an eccentric strap *k*, which is pivotally connected at *o* to the adjustable connecting rod *p*, the upper end of said rod being pivotally connected at *q* to the free end of the operating lever V. As the eccentric *j* is rotated, the parts are so timed as to operate the lever V in accordance with the impressions of the printing press.

Automatic means are provided for pushing the pusher bar *a* longitudinally to bring the trigger into engagement with the cross head at the desired intervals. On the stud *r* is



provided the ratchet wheel *s* having a removable toothed rim with teeth *t* so that rims having different numbers of teeth may be secured to the wheel whenever desired.

Also pivoted on the stud *r* is a pawl lever *u* carrying the spring pressed pawl *v*, adapted to engage the teeth *t* and actuate said wheel. A friction washer *w* is preferably provided between the hub of the wheel and the adjustable lock-nuts *x* to act as a stop for the wheel and maintain it in the position to which it is moved by the pawl. The sleeve *f* on the motor shaft *d* is provided with a cam *y*, upon the periphery of which bears the follower *z* in the form of a roller carried by the lower end of the bar 2, the upper end of said bar being provided with a pin 3 working in the slot 4 in the pawl lever *u*, so that rotation of the cam *y* will operate the pawl lever forward and backward. The bar 2 is also provided with a projection 5, to which is connected one end of a retracting spring 6, the other end of which is connected at 7 to the frame of the machine, so that the spring constantly tends to retract the pawl lever and its pawl, while the cam *y* pushes the bar 2 upward against the force of the spring. The cam *y* is preferably made of such shape that it gives a quick return motion to the pawl lever with a slow forward motion, so that the ratchet wheel *s* will not be caused to overshoot the desired limit of travel.

Removably secured to the inner face of the ratchet wheel *s* are two cams 8 and 9. One of these cams 8 is provided with a continuous projection or high part 10, while the other cam, 9, has this projection 10 extending only one-half of its length, the rest of the cam forming a low portion 11. The cams are radially arranged on the periphery of the ratchet wheel *s* with the low portion 11 of cam 9 inwardly.

On the end of the pusher bar *a* is arranged an adjustable head 12 having an eccentric pin 13 adapted to cooperate with the cams 8 and 9, and means are provided for rotating the head 12 and pin 13 through 180 degrees. As shown, a handle 14 is carried by a collar 15 on the pusher bar *a*, and the head 12 is provided with a sleeve 16 connected to the head by the set screw 17 operating in the groove 18. The handle 14 is provided with a spring pressed pin 19 adapted to engage a recess in the periphery of the sleeve. By rocking the handle 14, the sleeve 16 and head 12 may be rotated to bring the eccentric pin 13 in a position nearer the center of the ratchet wheel *s* as indicated in the figures, or farther away from said center. When the pin is moved nearer the center as indicated in Figs. 2 and 4, the cam 8 will bear on said pin during the revolution of the ratchet wheel, but the low portion 11 of the cam 9 will clear the pin, so that the pusher bar *a* will be pushed longitudinally once for

each revolution of the ratchet wheel to cause the trigger *W* to engage the cross head or slide *J*. When the eccentric pin 13 is rotated through an angle of 180 degrees and is thrown away from the center of the ratchet wheel, both cams 8 and 9 will bear on said eccentric pin during the rotation of the ratchet wheel *s*, so that the pusher bar will be actuated twice for every revolution of the ratchet wheel *s*.

The pawl lever *u* may be arranged to give any desired stroke, but it may be assumed for the purposes of this invention that the pawl lever moves the ratchet wheel *s* through one-quarter of a revolution at each stroke.

If the eccentric pin 13 is set to engage both cams 8 and 9 the cross head or slide *J* will be actuated to cut the material for every second impression of the press. If the eccentric pin is set to engage one cam only, the cross head will be actuated to cut the material for every fourth impression of the press. The number of lengths into which the material is cut depends upon the fractional revolutions of the ratchet wheel *s*. In order to provide a large number of fractions, a segmental shield 20 is pivotally arranged on the stud *r* and is adapted to be moved over different portions of the periphery of the ratchet wheel, to prevent the pawl *v* from engaging the teeth on the ratchet. In the drawings, the shield 20 is set to permit the pawl *v* to rotate the ratchet wheel one-quarter of a revolution to each stroke. The shield may be set so as to give the wheel a motion through a distance of one tooth for each stroke of the pawl lever, in which case the pawl would ride over the shield for the remainder of its stroke, and an index segment 21 is preferably provided adapted to be divided to indicate the ratio between the number of impressions and the intervals at which cutting off occurs. Ratchet wheels of 100 teeth and 96 teeth may conveniently be used and by this means and the proper manipulation of the shield 20, any desired ratio can be obtained between the number of impressions and the number of cut offs. Preferably the shield 20 is provided with an arm 22 having a thumb screw 23 engaging a slot 24 in the index segment 21, so that the shield may be adjusted to any desired position.

I claim and desire to obtain by Letters Patent the following:—

1. In a cutting machine, the combination of a driving shaft adapted to rotate continuously at a given rate, cutting devices adapted to be periodically actuated from said shaft, and means for varying the ratio between the revolutions of the shaft and the strokes of the cutting devices.

2. In a cutting machine, the combination of cutting devices, one of which reciprocates, a lever and trigger pivoted thereon, a pusher bar connected to move said trigger into en-



gagement with the reciprocating cutting device, and means for varying the rate at which said pusher bar is actuated.

3. In a cutting machine, the combination  
5 of cutting knives, a driving shaft, a trigger for actuating one of said knives, an operating lever connected to said trigger and connected to be actuated by said driving shaft, a pusher bar having an adjustable eccentric pin at one  
10 end, a ratchet wheel having cams adapted to engage said pin, a pawl lever and pawl, and means for actuating said pawl lever from the driving shaft.

4. In a cutting machine, the combination  
15 of cutting knives, a driving shaft, a trigger for actuating one of said knives, an operating lever connected to said trigger and connected to be actuated by said driving shaft, a pusher bar having an adjustable eccentric pin at one  
20 end, a ratchet wheel having cams adapted to engage said pin, a pawl lever and pawl, an adjustable shield adapted to control the effective stroke of said pawl, and means for actuating said pawl lever from the driving  
25 shaft.

5. In a cutting machine, the combination of cutting knives, a driving shaft, connections adapted to actuate one of said knives at each revolution of the driving shaft, and  
30 means for varying the ratio between the strokes of said knife and the revolutions of the shaft.

6. In a cutting machine, the combination of cutting knives, a driving shaft, means for  
35 connecting said shaft to actuate one of said knives, cams controlling said connections,

and means for varying the engagement of said cams with said connections.

7. In a cutting machine, the combination of cutting knives, a driving shaft, reciprocating means for actuating one of said knives, a ratchet wheel having a plurality of cams on its face, a pusher bar adapted to be engaged by said cams, and means for actuating said ratchet wheel from the driving shaft. 45

8. In a cutting machine, the combination of cutting knives, means for reciprocating one of said knives, a pusher bar controlling said connections, an adjustable eccentric pin on said pusher bar, and actuating means adapted to engage said eccentric pin and push said bar longitudinally. 50

9. In a cutting machine, the combination of cutting devices, means for actuating same, a pusher bar, a ratchet and pawl device controlling said pusher bar, and an adjustable shield for said ratchet and pawl device to vary the effective stroke of the pawl. 55

10. In a cutting machine, the combination of cutting devices, means for actuating  
60 the same, a pusher bar, a ratchet wheel, a pawl lever and pawl, and a quick return movement connected to move said pawl lever forward slowly and backward quickly.

In testimony whereof I have signed this  
specification in the presence of two subscribing witnesses. 65

CASIMIR VON PHILP.

Witnesses:

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W. B. TYLER.