

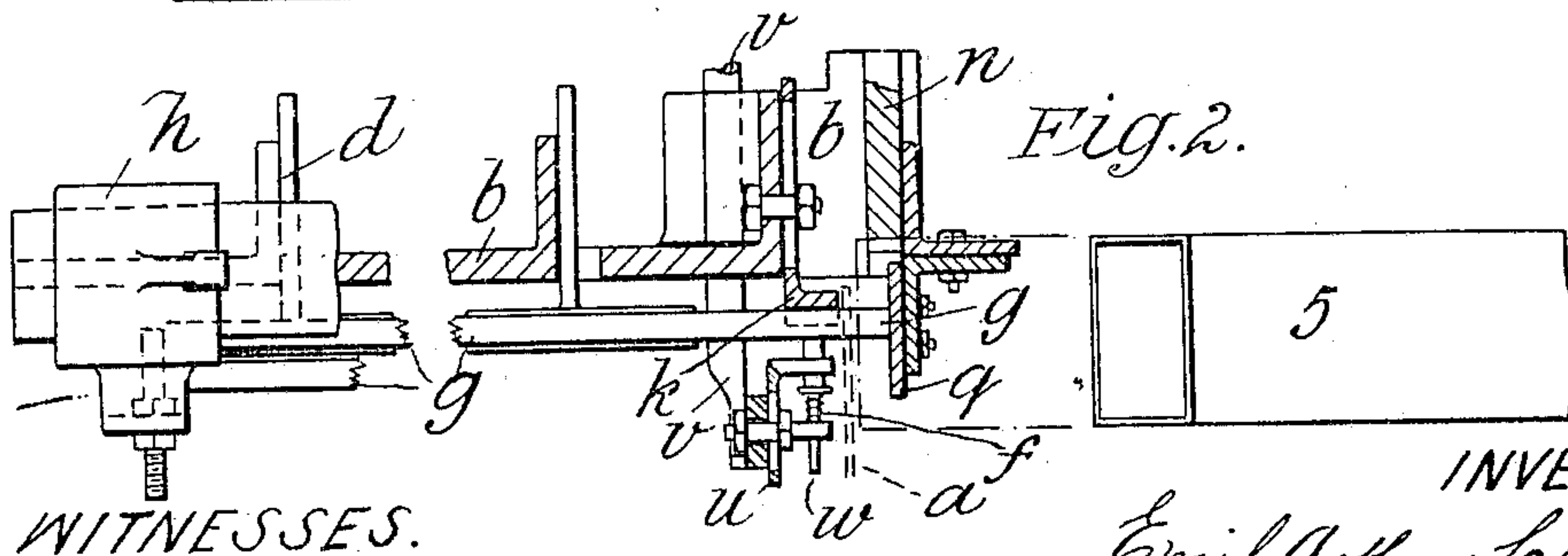
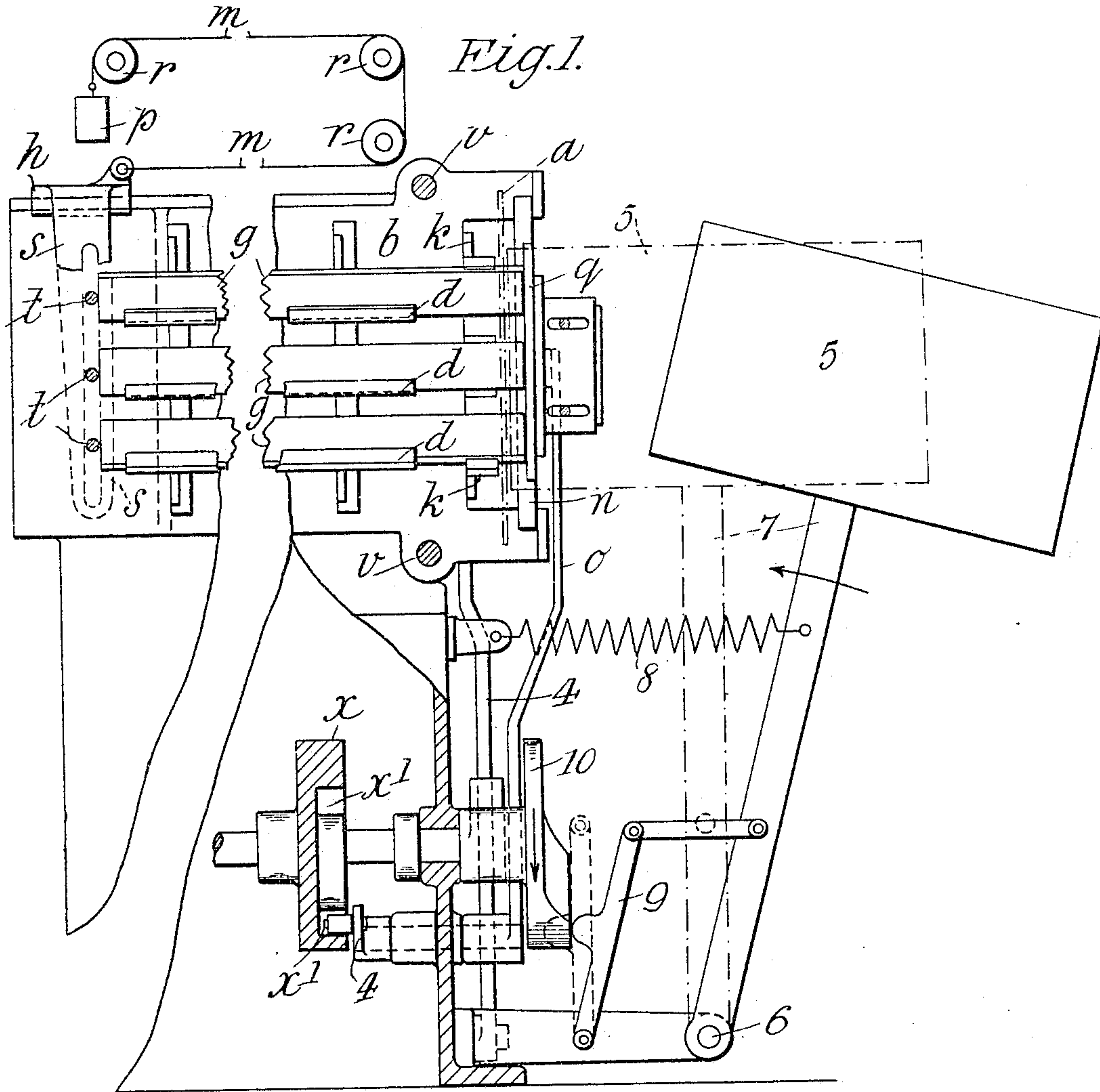
No. 801,744.

PATENTED OCT. 10, 1905.

E. A. SCHILBACH.
SAWING MACHINE.

APPLICATION FILED JULY 17, 1905.

6 SHEETS—SHEET 1.



WITNESSES.

Samuel Percival
Albert Jones.

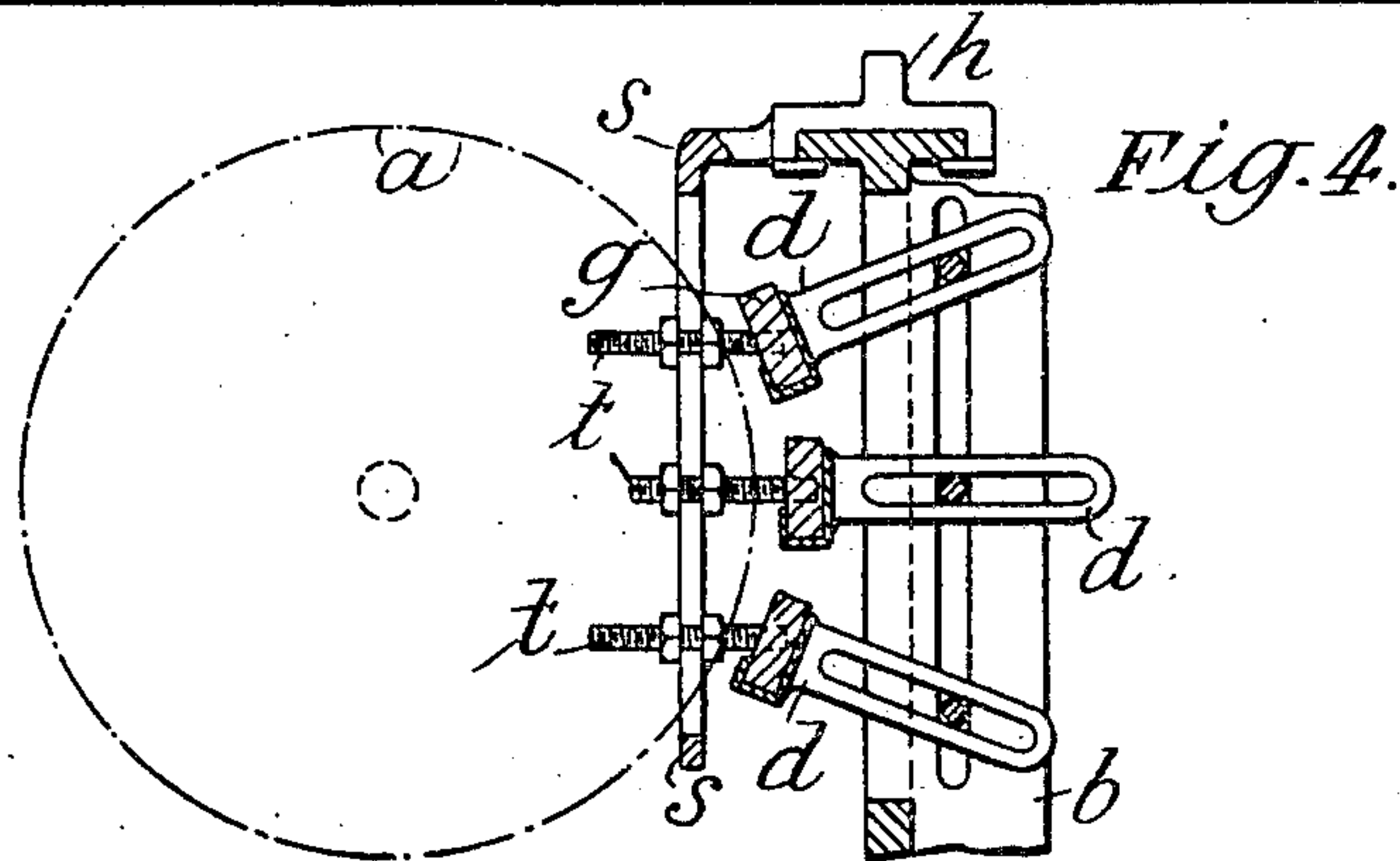
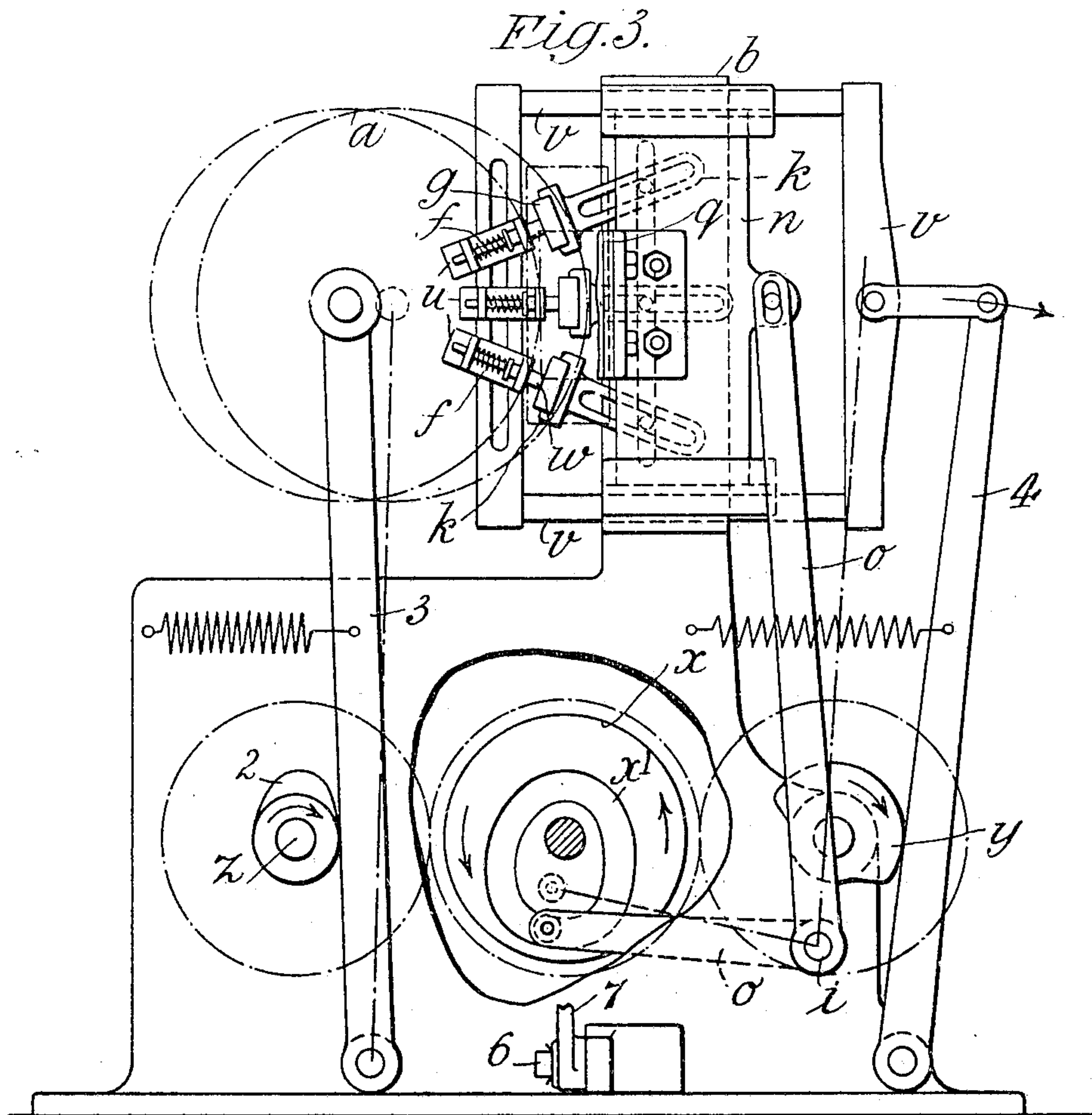
INVENTOR

Emil Arthur Schilbach
By his Attorneys.
Wheatley & McKenzie

E. A. SCHILBACH.
SAWING MACHINE.

APPLICATION FILED JULY 17, 1905.

5 SHEETS—SHEET 2.



WITNESSES
Samuel Percival
Albert Jones

INVENTOR
Emil Arthur Schilbach
By his Attorneys
Wheatley & Markenze

E. A. SCHILBACH.
SAWING MACHINE.

APPLICATION FILED JULY 17, 1905.

5 SHEETS—SHEET 3.

Fig. 5.

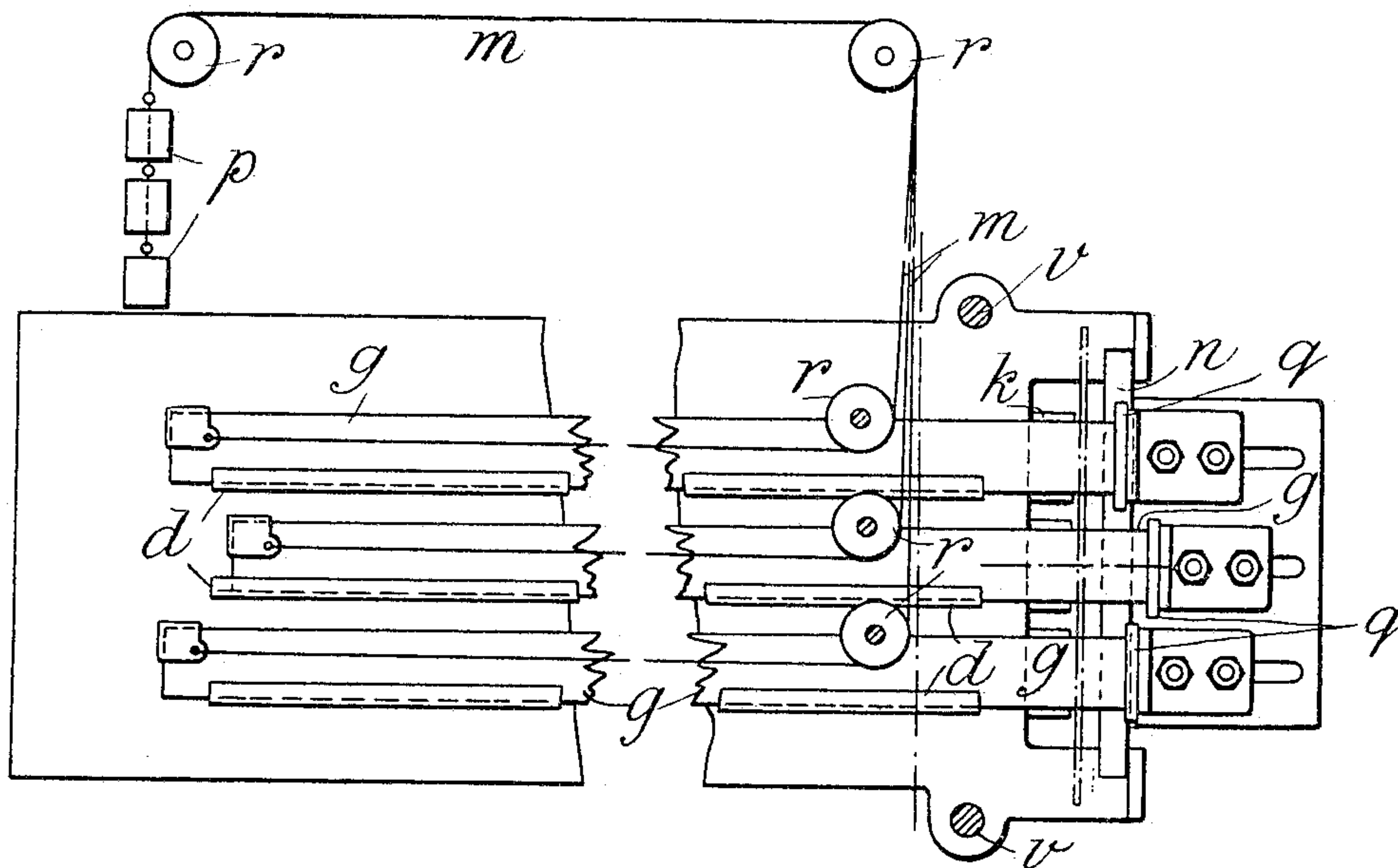
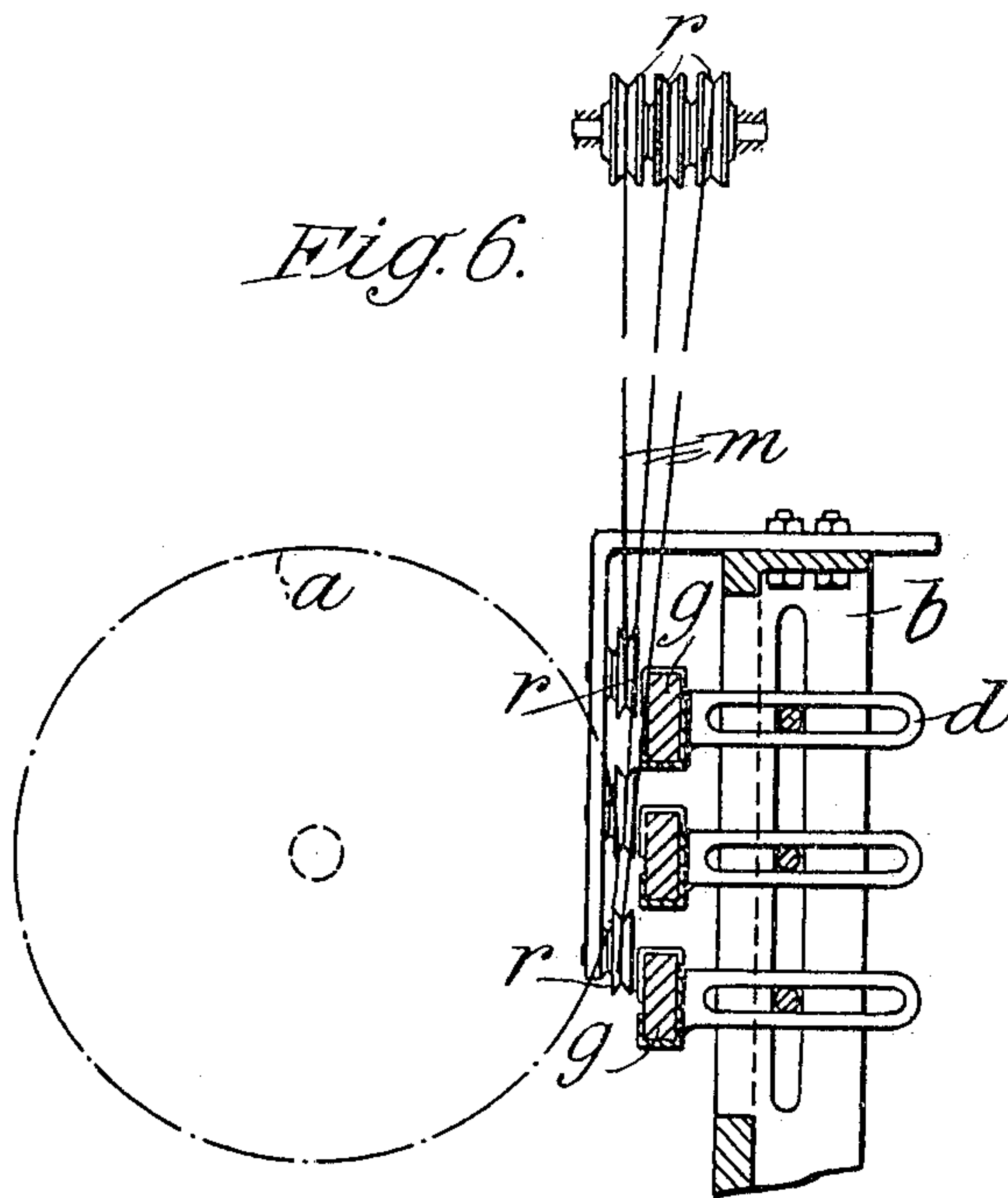


Fig. 6.



WITNESSES

Samuel Percival
Albert Jones

INVENTOR.

INVENTOR
Emil Arthur Schillack
By his Attorneys
Wheatley & McKenzie

E. A. SCHILBACH.
SAWING MACHINE.

APPLICATION FILED JULY 17, 1905.

5 SHEETS—SHEET 4.

Fig. 7.

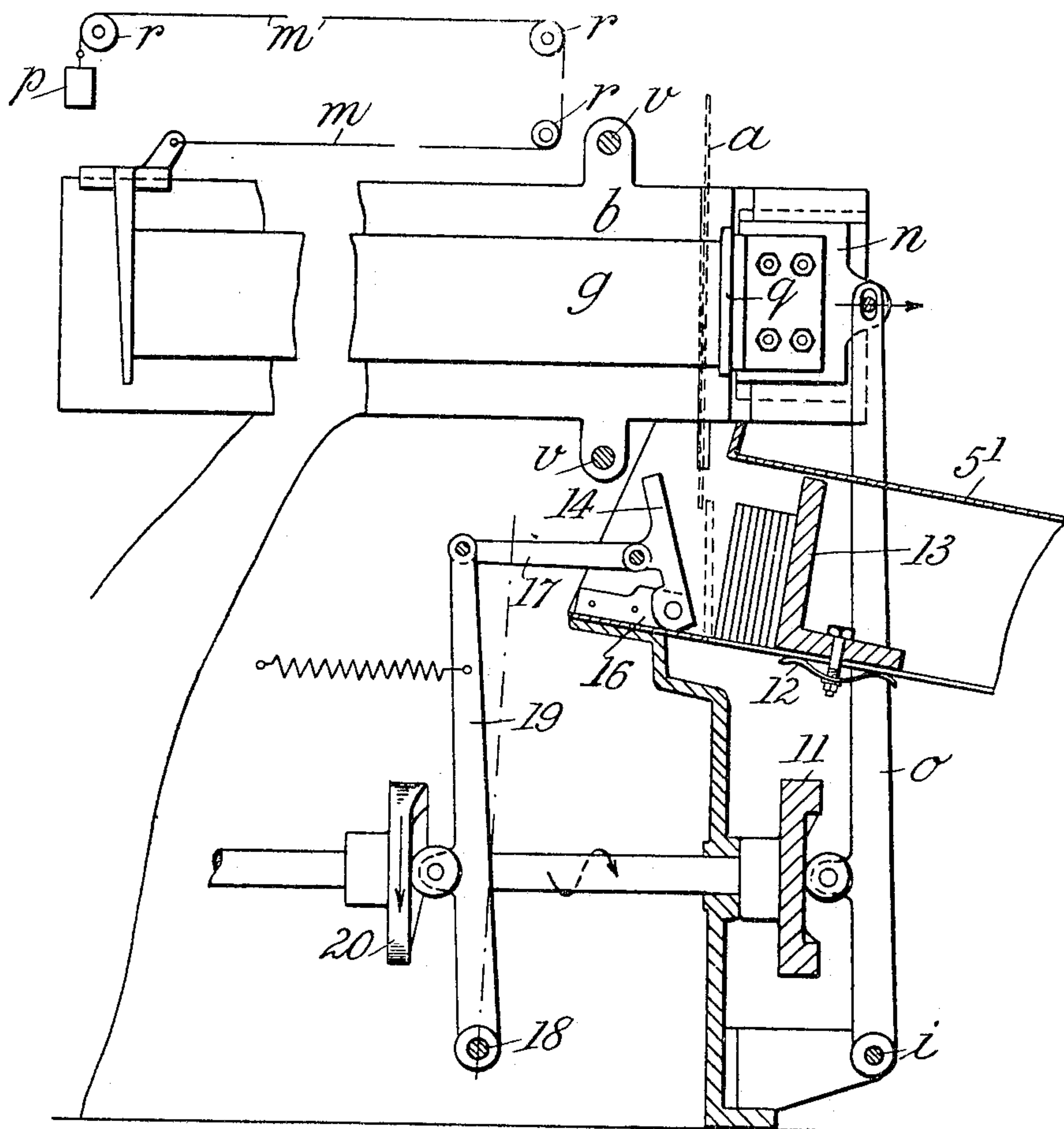
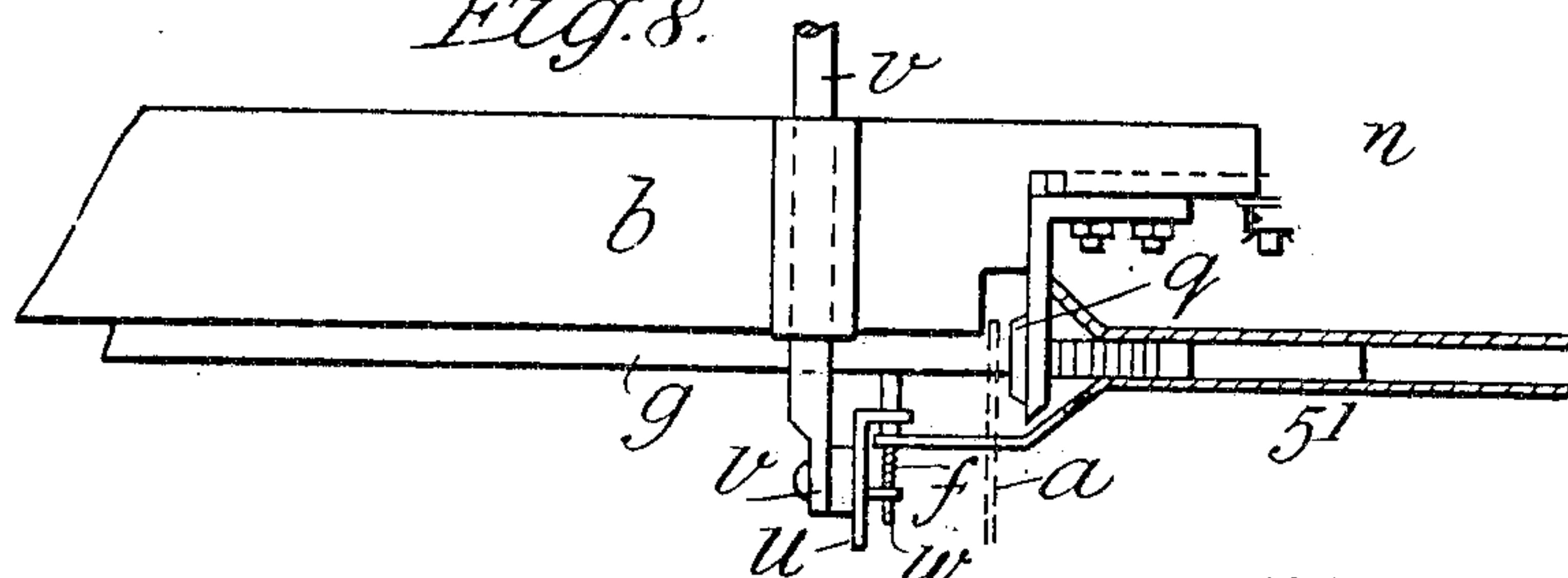


Fig. 8.



WITNESSES

Samuel Percival
Albert Jones

INVENTOR

Emil Arthur Schilbach
By his Attorneys
Wheatley & Markengue

No. 801,744.

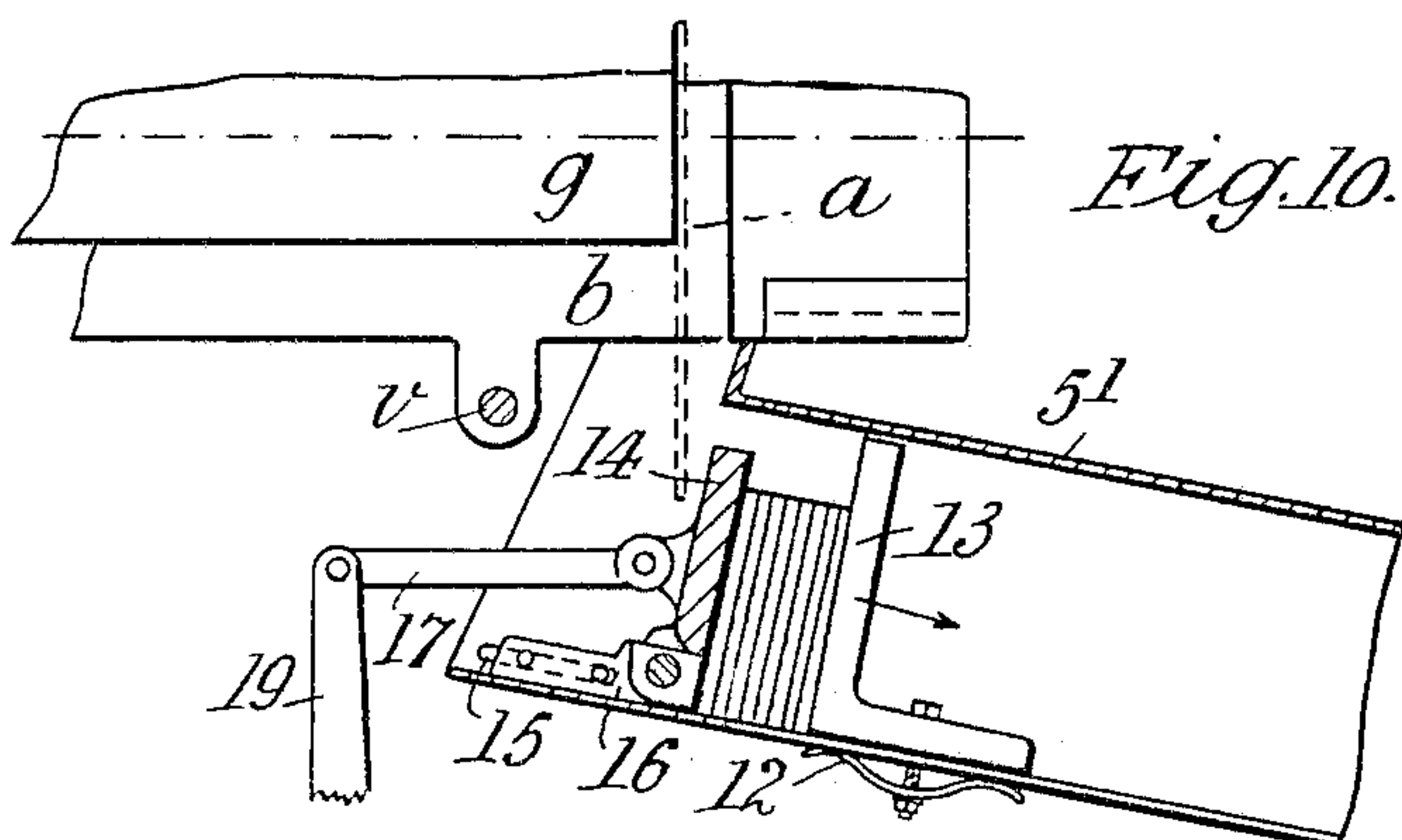
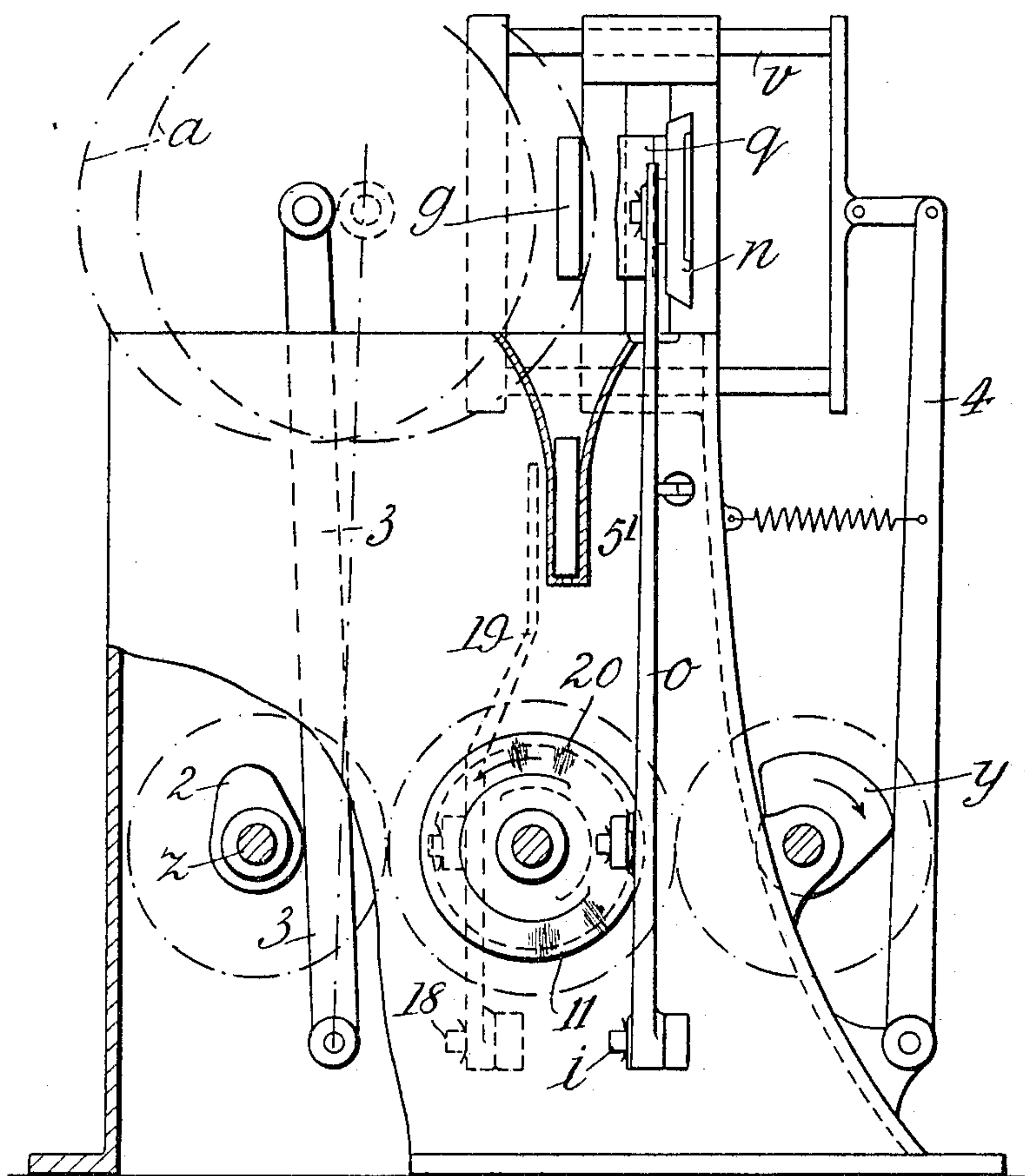
PATENTED OCT. 10, 1905.

E. A. SCHILBACH.
SAWING MACHINE.

APPLICATION FILED JULY 17, 1905.

5 SHEETS—SHEET 5.

Fig. 9.



WITNESSES

Samuel Percival
Albert Jones

INVENTOR

Emil Arthur Schilbach
By his Attorneys
Wheatley & Mackenzie

UNITED STATES PATENT OFFICE.

EMIL ARTHUR SCHILBACH, OF LEIPSIK, GERMANY.

SAWING-MACHINE.

No. 801,744.

Specification of Letters Patent.

Patented Oct. 10, 1905.

Application filed July 17, 1905. Serial No. 270,079.

To all whom it may concern:

Be it known that I, EMIL ARTHUR SCHILBACH, a subject of the Emperor of Germany, residing at 19 and 21 Harkortstrasse, Leipsic, Germany, have invented certain new and useful Improvements in Sawing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to crosscut-sawing machines for cutting pieces of equal size from pieces of work such as are used, for example, in the manufacture of mechanism for upright and grand pianos.

The object of the invention is to increase the output of the saw by enabling pieces of work of different shapes to be divided into short lengths simultaneously even though the cut-off portions are of the same or of different lengths; also, to provide means to intercept and collect the cut-off portions and to prevent any injurious jamming of the saw-blade.

In order that the saw may be employed to the utmost possible advantage when lengths of material of small cross-section are to be divided, in the present invention a large number of holders for the different lengths of material are arranged adjacent to the saw, in relation to which they can be so adjusted, according to the sectional form of the work, that the saw acts simultaneously on all the different pieces to be sawed up, and consequently a corresponding number of pieces are cut off during a single cutting movement.

In the drawings only those parts of the sawing-machine are shown which are necessary for making the invention clear.

Figure 1 is a partial sectional elevation of the sawing-machine; Fig. 2, a partial sectional plan of Fig. 1; Fig. 3, an end view of the machine; Fig. 4, a detailed representation of the holders for the pieces of work and a clamping device; Fig. 5, a front elevation of the upper part of the machine carrying the holders for the pieces of work and the stops; Fig. 6, a transverse section of Fig. 5; Fig. 7, a side view, partly in elevation, partly in section, of a modified form of the machine; Fig. 8, a sectional plan of an intercepting or collecting channel; Fig. 9, an end view of Fig. 7, and Fig. 10 a detailed view of the collecting-channel with the "ranging" slide in the working position.

Arranged at right angles to the circular saw *a* on the frame *b* of the machine is a series of adjustable supports *d* for the lengths of material *g* to be cut up, arranged in such a manner that they can be put nearer together or farther apart, according to the size or sectional form of the material *g*, and likewise be moved toward or away from the circular saw *a*. The adjustment is necessary, because in certain circumstances pieces of material of different sectional form have to be cut, and, again, because the circumference of the saw-blade *a* is varied. The parts *d* only afford the necessary support for the pieces of material *g*, and holders *k* are provided for holding the material *g* as firmly and immovably as possible at the front end—that is to say, in the place where the saw *a* acts. These holders *k* can be adjusted independently in relation to one another in the same manner as the holders *d* and brought into the necessary position as required. Thus during a single cutting movement the whole of the work to be cut can be so adjusted in relation to the saw *a* that when the cutting movement begins the saw *a* acts simultaneously on all the pieces of work, so that each piece is cut through simultaneously with the other pieces. The lengths of material *g* are fed forward by means of a suspended weight *p*, Fig. 1, connected by a cord *m*, passing over guide-pulleys *v*, with a slide or carriage *h*, which carries a downwardly-directed arm *s*. In a slot in this arm adjustable screw-threaded pins *t* are mounted and adapted to be pressed against the back ends of the pieces of work to feed them forward. The size of the piece to be cut off is determined by means of a stop *q*.

In order that the work may be securely held, clamping devices *u* are arranged opposite the holders *k*. The clamping devices *u* are arranged so as to be movable and adjustable on the sliding frame *v*, Figs. 2 and 3. Each of these clamping devices *u* is provided with one or more longitudinal movable bolts *w*, which are forced outward by springs *f*. The sliding frame *v* is actuated in the direction of the arrow, Fig. 3, by a cam *y* and lever 4 directly before the cutting movement begins and to such an extent that the bolts *w* are pressed against the work *g*, fixing it firmly in the holders *k* while the cut is effected. The cam *y*, Fig. 3, by means of which the frame *v* is actuated, is so adjusted that the frame *v* is only pushed back again to release

the work *g* after the saw *a* has finished its cut and been withdrawn. Hereby the weight *p* is prevented from exercising any injurious effect on the saw *a*. When the saw *a* and the frame *v* likewise are pushed back, the weight *p* acts to move forward the carriage *h* and therewith also feeds the work forward a distance corresponding to the amount to be cut off, the longitudinal movement of the piece of work *g*, as already mentioned, being limited by the stop *q*.

In order that the saw-blade may be protected against any injurious clamping effect during the sawing operations, the stops *q* are fixed to a slide *n*, which is held in suitable guides in the head *b* of the machine, so as to be movable at right angles to the feed movement of the piece of work *g*, Figs. 1 to 3, and is actuated from the driving-shaft of the machine. In the example illustrated a lever *o*, which oscillates around the bolt *i*, is employed for the purpose. This lever is actuated by a cam-groove *x'* in the wheel *x*. The wheel *x* is so adjusted in relation to the eccentric 2, which is keyed on the shaft *z* and actuates the swinging frame 3 of the saw, that it holds the stops *q* out of the range of the work *g* while sawing is effected. The cam for actuating the stops *q* is placed in similar relation with the device employed for clamping the work comprising the cam-disk *y*, the lever 4, the sliding frame *v*, and the clamps *u* attached thereto. The cam *y* only releases the clamp after the stops *q* have been pushed forward within range of the work *g* by the action of the cam-groove *x'*.

An oscillating receptacle 5 is employed for collecting the parts cut off. At the right moment—that is, directly before the saw has completed the cutting operation—this receptacle 5 is oscillated automatically against the cut-off piece of work, which is now received in the receptacle 5 after the cut is completed.

In the form illustrated the receptacle 5 is held by a lever 7, so as to oscillate around the bolt 6. The lever 7 is under the influence of a spring 8, which has a tendency to pull it toward the saw-blade, but is prevented from doing so before the proper time by the linked lever 9 and the face-cam 10.

In the modified form of the invention illustrated in Figs. 7 to 10 the sliding frame employed for automatically clamping and firmly holding the work during the sawing and afterward releasing it is moved at the proper time toward or from the work by the cam-disk *y* and the lever 4 exactly as described in reference to Figs. 1 to 4; but the slide *n*, which carries the stops *q*, is mounted to move longitudinally in the feed direction of the work *g*, and its operating-lever *o*, which oscillates around the bolt *i*, bears, with its roller, against a face-cam 11. As this form of slide *n*, which is permanently in front of the work, does not

allow of the employment of a receptacle that swings against the cut-off pieces of work, a receptacle 5' is fixed vertically beneath the holder for the work.

This receptacle 5' is arranged obliquely and provided with a stop-plate 13, which is subjected to the braking action of a blade-spring 12, Figs. 7 and 10, which is held against the under side of the receptacle 5' by a bolt working in a slot. The pieces cut off by the saw rest against this stop-plate 13. At the upper end of the receptacle 5' a plate 14 is pivotally mounted on a sliding shoe 16, held in suitable guides 15, Fig. 10, so as to be movable forward or backward. A rod 17 connects the plate 14 with a lever 19, that pivots around the bolt 18. A roller on the lever 19 is pulled by a spring against a face-cam 20, which directly after a cut-off piece has fallen swings the lever 19 out of the position shown in Fig. 7 into the position shown in Fig. 10, so that the slide-piece 14, which was previously inclined to the left, pushes the fallen portion cut off from the work *g* against the other pieces contained in the receptacle 5' and at the same time pushes the slide-piece 13 forward to the extent of the thickness of the cut-off piece. If pieces of different lengths are to be cut off at the same time from different pieces of work, each piece of work is connected with a separate weight *p* by means of the cord attached thereto laid over the pulleys *r*, Figs. 5 and 6, and the stops *q* are placed at different distances from the saw-blade.

What I claim, and desire to secure by Letters Patent, is—

1. In a sawing-machine as described, a series of independent adjustable supports adapted to support pieces of material of different sectional form, a saw adapted to simultaneously cut through all the pieces of material, and means for automatically gripping the material while being cut and afterward releasing it.

2. In a sawing-machine as described, a series of independent adjustable supports adapted to support pieces of material of different sectional form, a saw adapted to simultaneously cut through all the pieces of material, a series of adjustable holders arranged adjacent to the saw, spring gripping-bolts for cooperating with the holders to grip the work, and a slide-frame adapted to advance or retract the said bolts to grip the material during the cutting operation and then release it.

3. In a sawing-machine as described, a series of independent adjustable supports adapted to support pieces of material of different sectional form, a saw adapted to simultaneously cut through all the pieces of material, means for automatically gripping the material while being cut, and afterward releasing it, means for feeding the whole of the work for-

ward on its release, and stops for limiting the amount of feed, but adapted to be withdrawn from the work during the sawing operation.

4. In a sawing-machine as described, a series of independent adjustable supports adapted to support the material of different sectional form, a saw adapted to simultaneously cut through all the pieces of material, means for automatically gripping the material while being cut, and afterward releasing it, means for independently feeding each separate length of material forward on its release and adjustable stops for limiting the amount of feed of each separate length enabling some to be fed farther than others, said stops being adapted to be withdrawn from the work during the sawing operation.

5. In a sawing-machine as described, a series of independent adjustable supports adapted to support pieces of material of different sectional form, a saw adapted to simultaneously cut through all the pieces of material, means for automatically gripping the material while being cut, and afterward releasing it, means for feeding the whole of the work forward on its release, and stops movable in a plane at right angles to the direction of feed and capable of being withdrawn from the work during the sawing operation.

6. In a sawing-machine as described, a se-

ries of independent adjustable supports adapted to support pieces of material of different sectional form, a saw adapted to simultaneously cut through all the pieces of material, means for automatically gripping the material while being cut, and afterward releasing it, a collecting-receptacle for the cut-off pieces, and means for automatically moving the receptacle toward the work just previous to the completion of each cut, and moving it away after the cut-off pieces have been delivered into it.

7. In a sawing-machine as described, a series of independent adjustable supports adapted to support pieces of material of different sectional form, a saw adapted to simultaneously cut through all the pieces of material, means for automatically gripping the material while being cut, and afterward releasing it, a collecting-receptacle for the cut-off pieces, a movable plate mounted in the receptacle, and a pivoted sliding plate cooperating with the movable plate to pack the cut-off pieces in the receptacle.

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

EMIL ARTHUR SCHILBACH.

Witnesses:

HERM. SACK,

RUDOLPH FRICKE.