

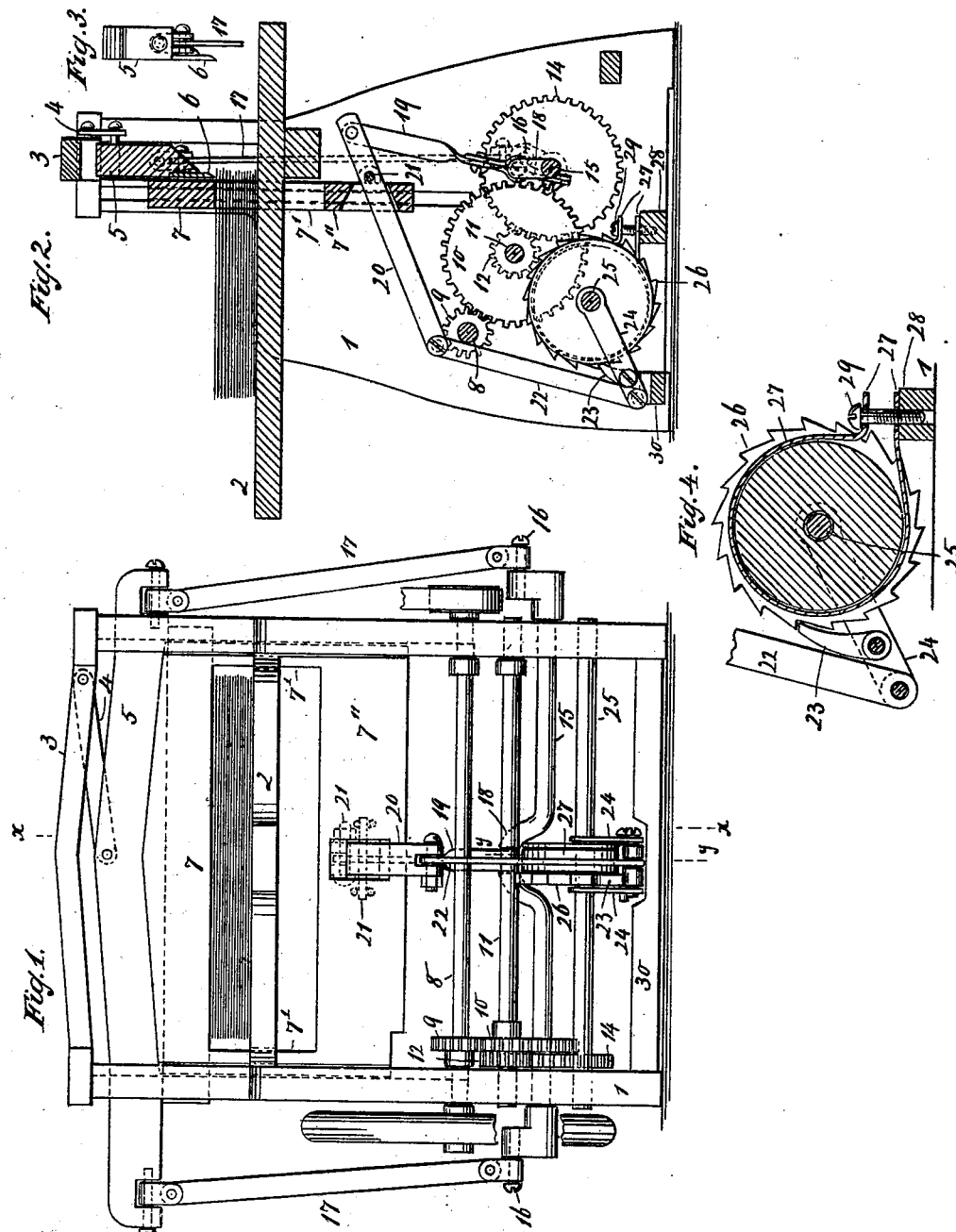
No. 646,880.

Patented Apr. 3, 1900.

C. L. SMITH.  
SELF CLAMPING PAPER CUTTER.

(Application filed Aug. 3, 1899.)

(No Model.)



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES L. SMITH, OF NEW YORK, N. Y.

## SELF-CLAMPING PAPER-CUTTER.

SPECIFICATION forming part of Letters Patent No. 646,880, dated April 3, 1900.

Application filed August 3, 1899. Serial No. 726,041. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES L. SMITH, a citizen of the United States, residing in the borough of Manhattan, in the city, county, and State of New York, have invented new and useful Improvements in Self-Clamping Paper-Cutters, of which the following is a specification.

This invention relates to certain novel features of construction set forth in the following specification and claims, and illustrated in the annexed drawings, in which—

Figure 1 is a rear elevation of a paper-cutter embodying this invention. Fig. 2 is a section along  $x x$ , Fig. 1. Fig. 3 is an end view of the knife-bar. Fig. 4 shows a brake or friction device.

In the drawings is shown a frame or support 1, having a table 2. To cross-piece 3, supported above the table, is jointed link 4, to which is jointed knife-bar 5, provided with knife 6, Figs. 2 and 3, which in cutting moves toward and across the table to give a draw cut. A clamp 7 holds the paper or material to the table during the operation, so that a proper or neat cut is obtained. This clamp 7 is constructed with a wide longitudinal slot, rectangular in outline, through which the paper-table extends, and its side pieces 7' are guided by ways or grooves in frame 1, and the lower transverse piece 7'' connects the side pieces 7'. The upper transverse piece 7 is the clamping portion, as it holds the material to the table.

In the frame is mounted a driving-shaft 8, which can have the usual fast and loose pulleys and fly-wheel, as required. The driving-shaft 8 by gear 9 transmits motion to gear 10, mounted on or fixed to shaft 11. To this shaft or to gear 10 is secured a smaller gear 12, engaging gear 14, secured to or made to rotate the counter-shaft 15. Of course this train of gears can be modified as to size and number of gear-wheels, if required.

The transmission-shaft 15 acts as a driver for the knife-bar, said shaft having eccentrics or cranks 16. The links 17 are jointed or loosely connected to the eccentrics 16 and to knife-bar 5, and as shaft 15 rotates the cranks 16 reciprocate the links and the knife-bar. The shaft 15 has a crank or eccentric 18, from which extends link 19 to lever 20,

mounted on or pivoted at 21 to the clamp part 7''.

The lever 20 is connected by link 22 to a pawl 23, or rather to the arm 24, carrying this pawl, and which arm swings on a ratchet-wheel shaft 25. On this shaft is mounted the ratchet-wheel 26, and a friction brake-band 27, encircling a hub on the ratchet-wheel, prevents too ready rotation of the ratchet-wheel. This brake-band 27 can be readily formed in any suitable way—as, for example, by a strap having an end secured to a cross-piece 28—a screw 29 engaging the other end of the strap and serving to adjust the friction or grip of the strap about the ratchet-wheel hub as the latter is to turn more or less easily. The friction or brake band can be adjusted so that the clamp 7 will press the material more or less firmly to the table 2, according as such material is harder or softer.

Supposing the material to be cut has been placed on the table under the clamp and knife, then as the shaft or driver 15 rotates the link 19 is drawn downward or away from the table 2. The tendency of the long arm of the lever 20 is to raise or swing up the link 22; but by reason of pawl 23 engaging the ratchet-wheel 26 this pawl acts as a holder and prevents link 22 from rising until the lever 20 by its point or pivot 21 has drawn the paper-clamp onto the material on table 2 and such material has been clamped or compressed to the required degree, as determined by the adjusted tension of the friction-brake, which friction-brake may be of any construction suitable for the purpose in hand.

The lever 20, it is noticed, acts at times as a first and second class lever. When the clamp 7 is at rest, the point 21 is the fulcrum, the link 19 the power, and the link 22 the resistance. The lever is now of the first class. When the clamp is being moved and the link 22 is at rest, the point 21 is the resistance-point, while the lever fulcrums on the link 22. The lever is now of the second class. Of course the connecting-point 21 can be set, as required, nearer to one end or another of the lever 20, and as this point is set one way or another the leverage is varied. In other words, the links 19 and 22 allow the lever 20 to be mounted or extended across the clamp to opposite sides thereof, so as to project more

or less on one side or another, and when set as required the fulcrum or pin 21 is passed through or across the lever. As the clamp 7 carries this fulcrum 21 the clamp and lever 5 20 are connected or the lever is carried by the clamp, and the lever while it rocks or swings on said clamp rises and falls therewith.

The free end of the pawl-carrier 24 can be prevented from dropping too low either by coming to rest on the floor or on a cross-piece 10 30 in frame 1, or the clamp part 7" can be provided with a stop or cut of such size as to prevent the lever from dropping link 22 too low. When the pawl 24 is at rest and the 15 shaft 15 raises link 19, the lever 20 raises the clamp 7, so as to give room for material to be placed on the table under the clamp.

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

- 20 1. The combination, in a paper-cutting machine, of a paper-table, a cutting-knife, a paper-clamp arranged above the paper-table and extending under the same, a swinging lever pivotally supported at one end, fulcrumed between its ends directly on the part 25 of the clamp under the table and rising and falling with said clamp, means for actuating the knife, and devices connected with the end of said lever to draw its fulcrum and the paper-clamp downward and to swing the lever on said fulcrum, and a friction brake mechanism in operative connection with the said support for the other end of said lever, substantially as and for the purposes described.
- 35 2. The combination, in a paper-cutting machine, of a paper-table, a cutting-knife, means for operating the cutting-knife, a paper-clamp having a part extending under the paper-table, a lever fulcrumed between its ends di- 40 rectly on said part of the paper-clamp under the paper-table to swing upon and rise and fall with said clamp, mechanism connected

with one end of the lever to draw its fulcrum and the paper-clamp downward, and ratchet and friction brake mechanism connected with 45 the other end of said lever, substantially as described.

3. The combination, in a paper-cutting machine, of a paper-table, a cutting-knife, a paper-clamp having a part arranged under the 50 paper-table, a lever fulcrumed between its ends on said part of the paper-clamp under the paper-table to provide long and short arms, mechanism connected with the short arm of the lever to draw its said fulcrum and 55 the paper-clamp downward, a vertically-movable link pivoted to the long arm of said lever, a pawl connected with said link, a ratchet-wheel with which the pawl engages, and devices operating on the ratchet-wheel to resist 60 its rotation when said lever is actuated and tends to move said link upward, substantially as described.

4. The combination, in a paper-cutting machine, of a paper-table, a cutting-knife, a paper-clamp having a part extending under the 65 paper-table, a lever fulcrumed between its ends on said part of the paper-clamp under the paper-table and rising and falling with said clamp, mechanism connected with one 70 end of the lever for drawing its fulcrum with the paper-clamp downward, a vertically-movable link connected with the other end of said lever, an arm connected with said link, a pawl on the arm, a ratchet-wheel having a hub, 75 and a friction-band encircling said hub, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

CHARLES L. SMITH.

Witnesses:

W. C. HAUFF,

E. F. KASTENHUBER.