Dec. 19, 1944. S. J. PASK 2,365,288

APPARATUS FOR CUTTING STRIPS

Filed Feb. 16, 1944 2 Sheets-Sheet 1

Fig. 1.

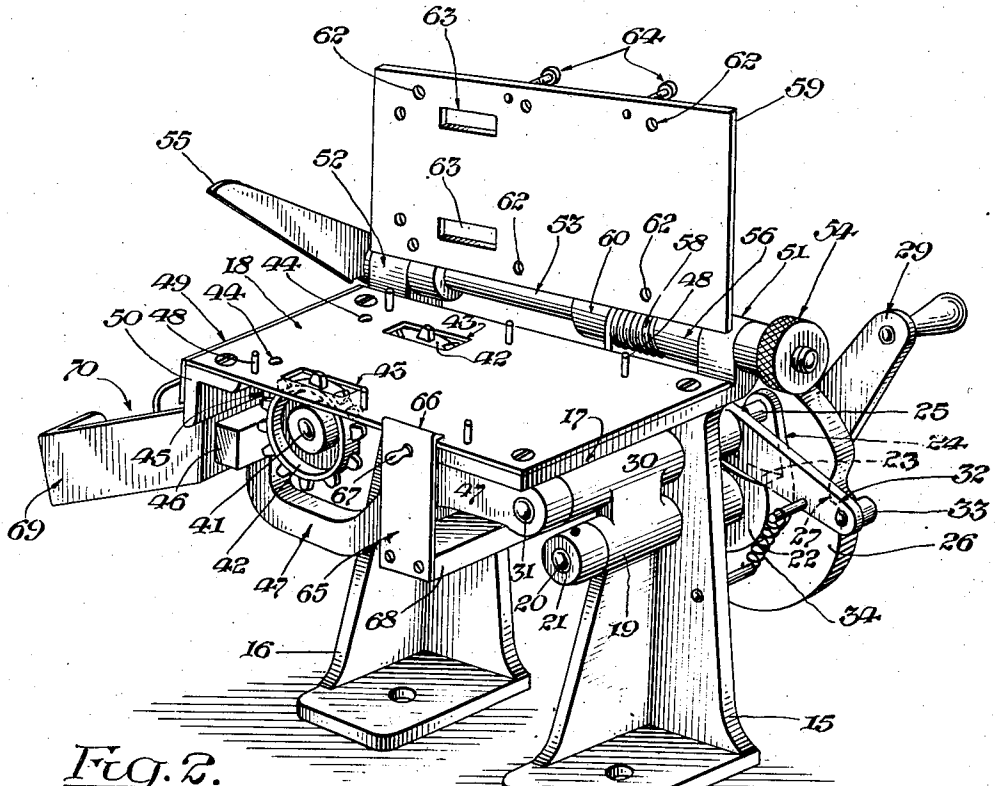
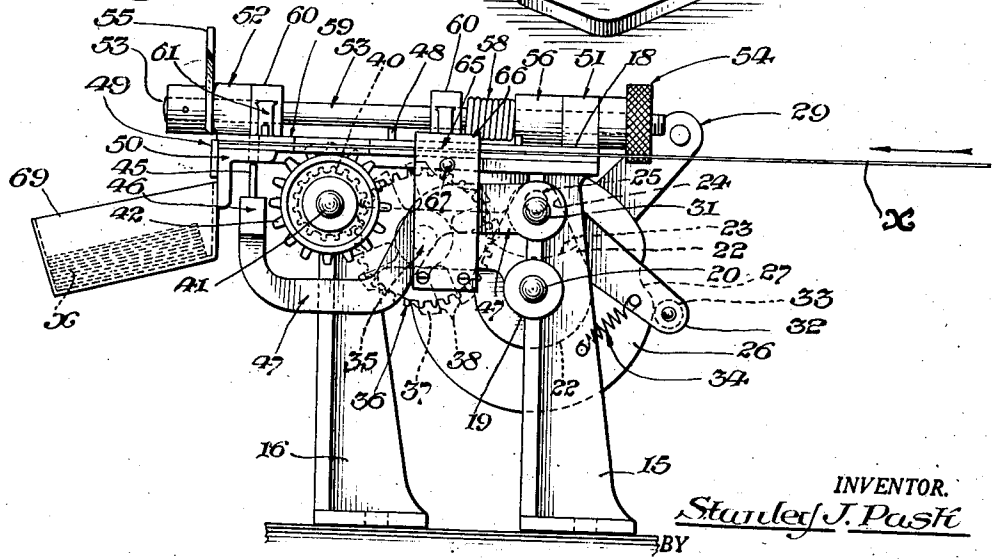


Fig. 2.



INVENTOR.
Stanley J. Pask
BY
Cousins & Cousins
Attorneys,

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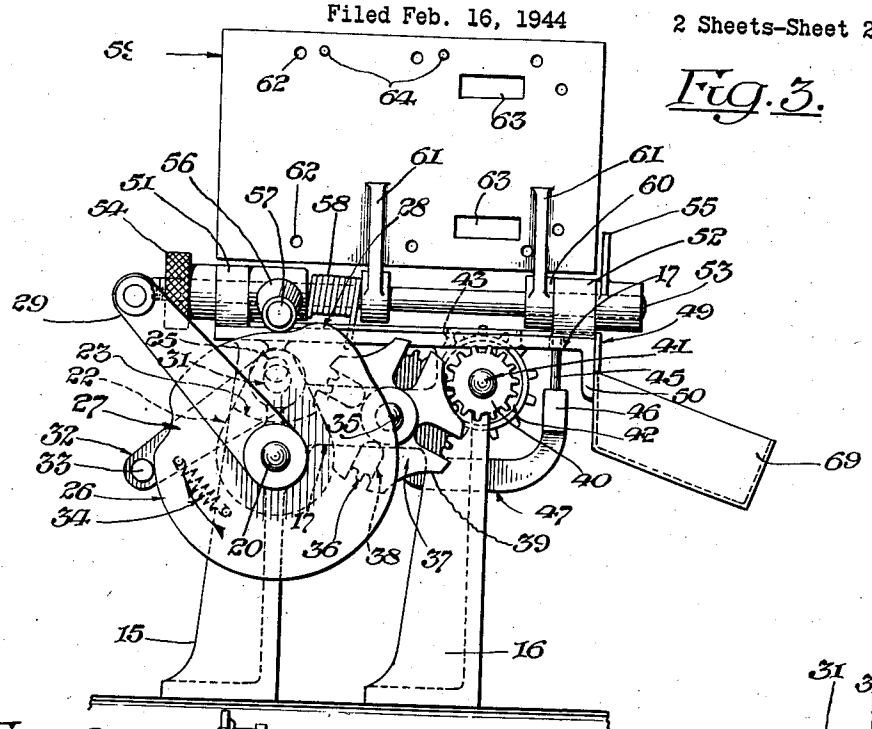


Fig. 3.

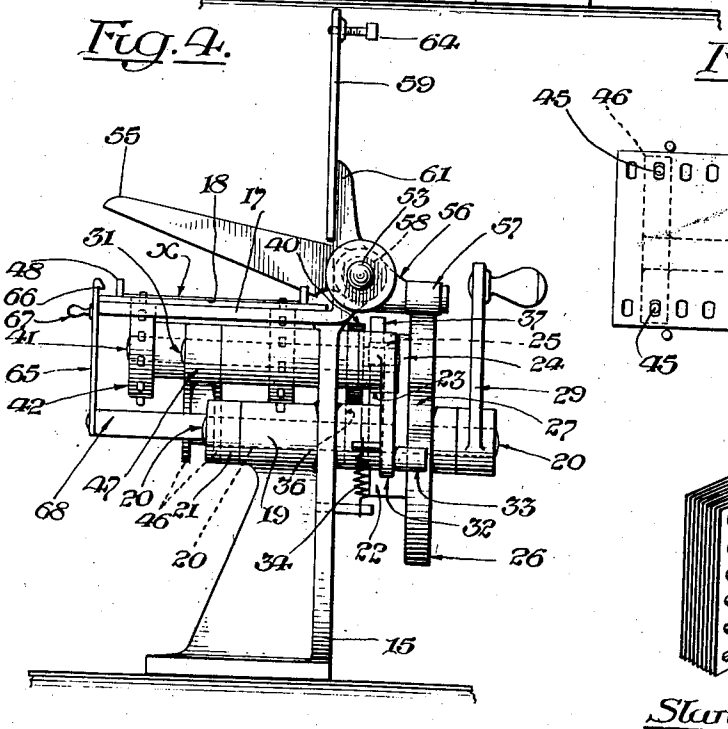


Fig. 4.

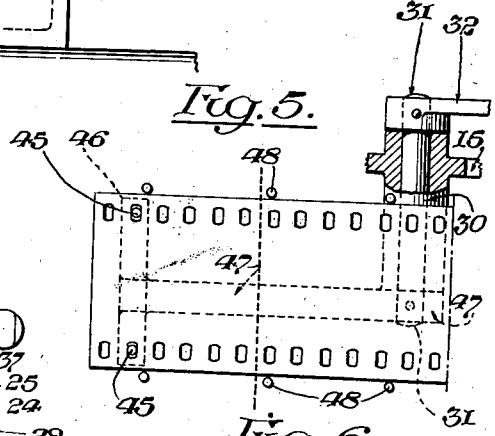
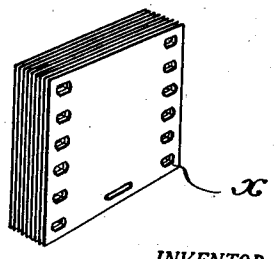


Fig. 5.

Fig. 6.



INVENTOR.
Sturdef J. Pask
BY
Cousins & Cousins
Attorneys,

Patented Dec. 19, 1944

2,365,288

UNITED STATES PATENT OFFICE

2,365,288

APPARATUS FOR CUTTING STRIPS

Stanley J. Pask, Long Island City, N. Y., assignor to Grant Positype Corporation, New York, N. Y., a corporation of New York

Application February 16, 1944, Serial No. 522,644

4 Claims. (Cl. 164—42)

This invention relates to machines for severing tape-like strips of material into uniform short lengths, with special reference to cutting moving picture photo films crosswise into individual frames.

An object of the invention is to provide a machine which will advance a strip of film a predetermined distance along a flat surface, momentarily interrupt it, and, during the cessation of movement, shear the strip transversely, thereafter automatically resuming forward movement of the strip and completing the cycle of its operation, repeating as required.

Further features are in the provision of means for positively moving the strip, between lateral guides, uniform distances and gathering the cut portions in consecutive order progressively.

These and other objects, which will become apparent as the description proceeds, are accomplished by the novel construction, combination and arrangement of parts hereinafter described and illustrated in the accompanying drawings, constituting a graphic component of this disclosure, and in which:

Figure 1 is a perspective view of a complete embodiment of the invention.

Figure 2 is a front elevational view thereof with the cover down.

Figure 3 is a rear elevational view of the same, the cover being shown as raised.

Figure 4 is a front elevational view of the machine.

Figure 5 is a fragmentary plan view of a conventional type of film and its advancing mechanism, partially in section.

Figure 6 is a perspective view of a finished article, its leaves showing the product of the machine.

Referring in greater detail to the drawings, the numeral 15 designates one of a pair of legs and 16 the other, connected by a frame 17 on which is secured a smooth surfaced, level rectangular plate constituting a table 18 extending over and past the leg 16.

A housing 19, integral with the leg 15, forms a journal for a shaft 20, disposed transversely of the table, having a fixed collar 21 on its front end, while on its rear portion, spaced outwardly from the housing, is fixed a drive plate 22 arcuately shaped and having a recess 23 of the same radius as that of the arc; an arm 24, of reduced thickness extends from one side of the recess and fixed in it is a drive pin 25.

Further outward on the shaft 20 is a profile cam 26 having a low point 27 and a high point 28; still further out on the shaft is fixed a manually operable crank 29.

Another bearing 30, higher up on the leg 15, carries a spindle 31 having fixed on its rear outer end, a lever 32 provided with a roller 33 drawn against the cam 26 by a tension spring 34 having its ends attached respectively to the leg and lever.

A stud 35, set in the frame 17, has revolubly mounted on it a spur gear 36, alongside of which is a disc 37 having uniformly spaced radial recesses 38, four being shown, between each pair of which the periphery of the disc is concavely formed as at 39, to the radius of the drive plate 22 which is arranged to make contact.

The drive pin 25 is fitted to engage in the recesses 38 in timed relation, turning the disc one-fourth of a revolution, rendered possible by the recess 23 in the driver as it is rotated, the disc at all other times being locked by the element 22, this construction being the well known Geneva movement for intermittently starting and stopping mechanism connected therewith.

As the disc and gear are rigidly connected, movement is transmitted to a pinion 40, fixed on a spindle 41, journaled in the frame 17 and having secured on its end portions sprockets 42.

The teeth of the sprockets 42 extend through spaces 43 in the table 18, positioned slightly rearward of alined openings 44 adapted to guide stay pins 45 set in a bar 46 carried by the upturned terminals of a lever 47, fixed on the spindle 31 which, as has been seen, is actuated by the cam 26 in timed relation to the momentary cessations of movement of the sprockets 42.

Set in the upper surface of the table 18 are a plurality of guide pins 48 arranged to maintain the strip from lateral movement, the strip X passing off the rear edge of the table over a fixed knife 49 supported by a reinforcing angle bar 50 attached under the table 18 at its outer edge.

Extending upwardly from the rear edge of the frame 17, at its ends, are two bosses 51 and 52 forming bearings for a spindle 53 having screw-threads at its front end to receive a knurled adjusting nut 54, its hub abutting the boss 51. The opposite end of the spindle has rigidly attached to it a knife blade 55 adjustable relative to the fixed blade 49 by the nut 54; an arm 56, fixed on the spindle, adjacent the boss 51, carries a roller 57 held against the cam 26 by a spring 58 coiled around the spindle and anchored at its ends.

A cover plate 59 is provided with hinge trunnions 60 rotatable on the spindle 53 and having

arms 61 re-enforcing the plate; the cover has openings 62 to receive the guide pins 48 when closed and apertures 63 for the teeth of the sprockets 42.

Adjusting screws 64 limit the closing of the cover 59, which is held by a snap catch 65 when closed, the catch having a beveled upper edge 66 to engage the cover when closing and a handle 67 for retracting it; this catch is disposed at the front of the machine, being supported by a bar 68 secured to the under side of the frame 17.

To complete the machine, a tray 69 is suspended at a downward inclination from the angle bar 50 at the front of the table, to catch the clippings from the strip, the tray having a central opening 70 for convenience in removing the cut pieces.

In operation, the cover 59 is raised, leaving the table 18 clear to receive the strip of material to be cut; this strip is placed between opposed pairs of the guide pins 48 and the teeth of the sprockets entered into the marginal perforations of the strip in such manner as to bring the line of severance to the outer edge of the fixed knife 49. Upon being closed, the cover confines the strip, but permits it to move linearly; upon operating the crank 29, the strip is advanced by the gearing, actuating the sprockets a definite distance, then held stationary by the Geneva device, and further by the pins 45; thereupon the movable knife 55 descends, cutting off such portion of the strip as has been determined upon and then raised, the cut fragments dropping in consecutive order into the tray 69.

Thereafter, the pins 45 are lowered and a new cycle of operations begin, the machine being automatic in its operations so long as the shaft 20 is rotated, either by hand, as shown, or by power, as will be readily understood.

Although the machine is designed primarily for the production of a hand-operated exhibitor, as shown in Figure 6, operated by running the thumb across the top of the package, it is apparent that its use is not so limited, but is capable of cutting definite equal lengths of any fibril tape-like material.

Having thus described the invention and set forth the manner of its construction, application and use, what is claimed as new and desired to be secured by Letters Patent of the United States, is:

1. In a machine for cutting off uniform lengths of strip material, a stand having a level table, a transverse shear blade fixed at one end thereof, a hinged blade cooperative therewith, a hinged cover foldable over the table and strip thereon, means for advancing the strip therebetween at uniform intervals over the fixed blade, cam actuated means to operate the hinged blade during cessation of movement of the strip, and a tray to receive the cut portions of the strip in consecutive order.

2. In a machine for cutting off uniform lengths of strip material, a stand having a level table, a transverse shear blade fixed at one end thereof, a hinged blade cooperative therewith, means for adjusting the hinged blade relative to the fixed blade, fixed guides for the strip set in said table, means to advance the strip intermittently, means to immobilize the strip during the intermission of its movement, a cover foldable over said table, said cover retaining the strip flat upon the table, means to clamp the cover when so folded, said means being releasable, and means to receive the sheared portions of the strip in succession.

3. A machine for cutting perforated moving picture film strips into uniform frames, comprising a table having a level top, a shear blade fixed at one end of the table, sprockets having teeth extending upwardly through the table to engage the film perforations, a Geneva device geared to said sprockets, a driven shaft to actuate the Geneva device, a cam on said shaft, a hinged shear blade co-operative with the fixed blade, and means actuated by said cam to operate the hinged blade periodically.

4. A machine for cutting perforated moving picture film strips into uniform frames, comprising a table having a transverse shear blade at its rear end, a shaft at the front end of the table, a drive means therefor, a Geneva device driven by said shaft, sprockets intermittently actuated by said device, their teeth protruding through the table to engage openings in the strips, a hinged blade, a cam on said shaft to actuate the hinged blade in timed relation to said device thereby to sever the strips, a lever pivoted to the table, and actuated by said cam, and detent pins carried by said lever to immobilize the strips during the cutting operation of said shear blades.

STANLEY J. PASK.