April 29, 1969 B. E. HANSON 3,441,268

DEVICE FOR TAMPING ENVELOPES

Filed June 1, 1967

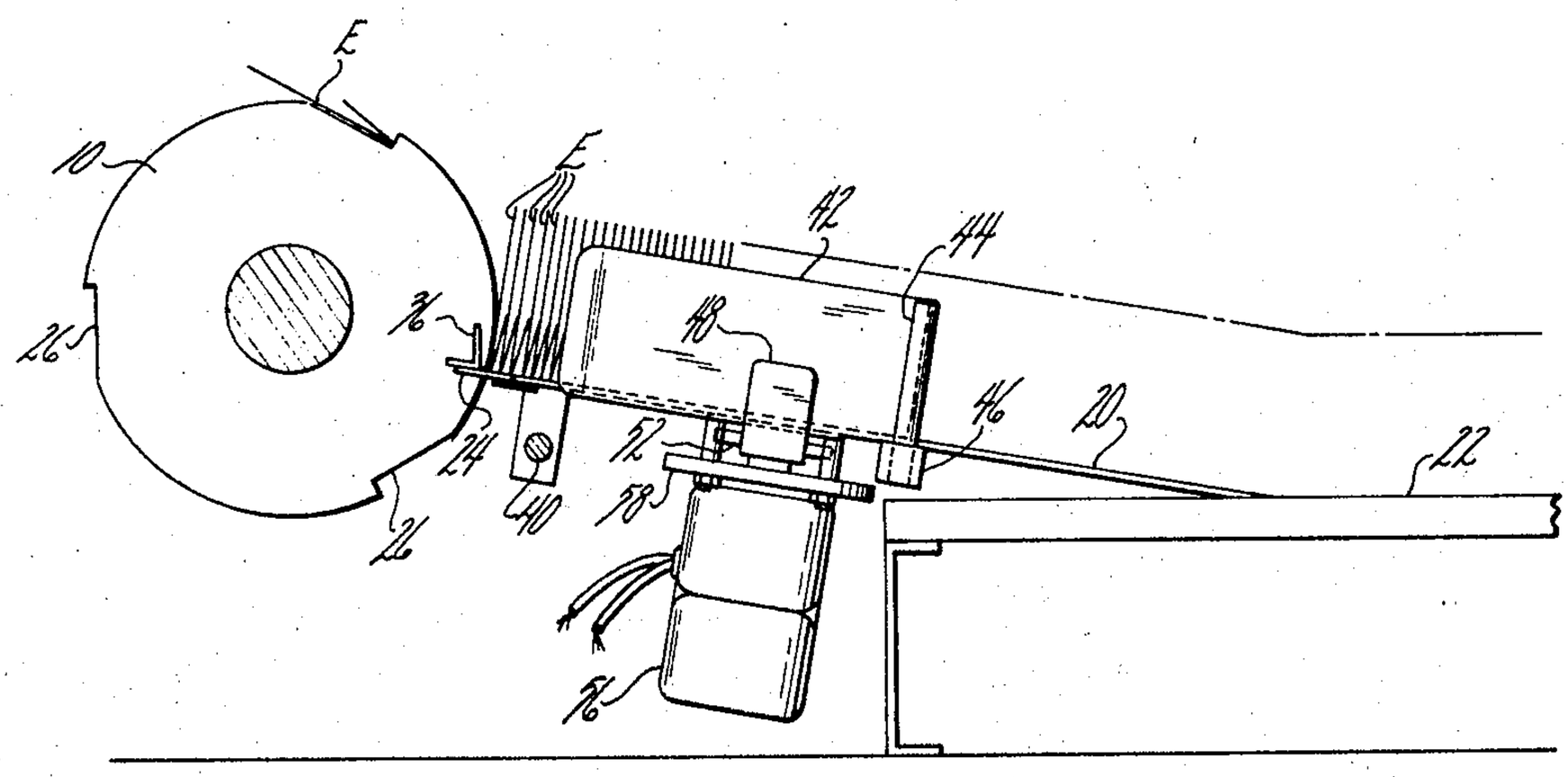


FIG. 1

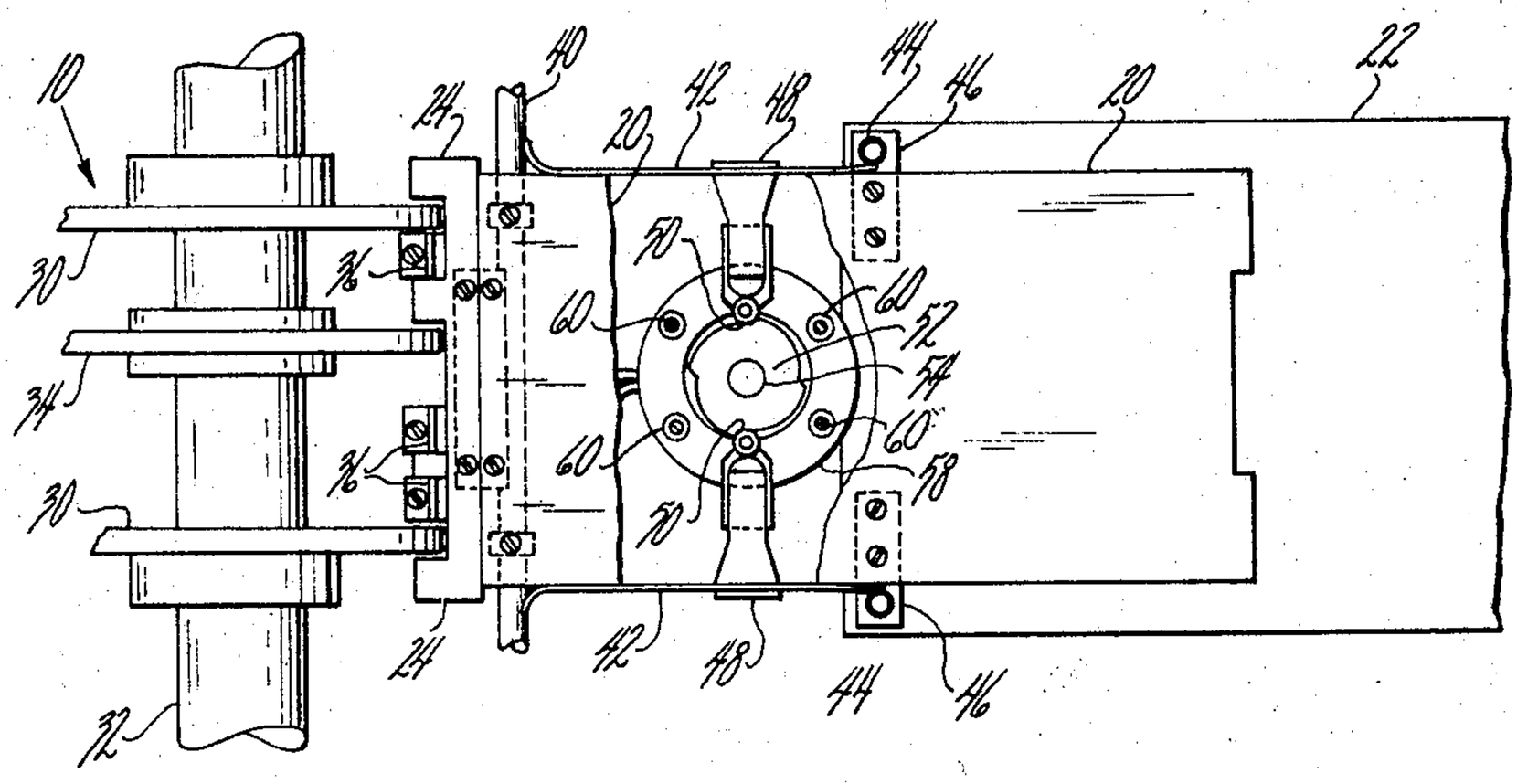


FIG. 2

INVENTOR.
BROR E. HANSON
BY
McCormick, Paulding & Huber
ATTORNEYS

United States Patent Office

3,441,268

Patented Apr. 29, 1969

3,441,268

DEVICE FOR TAMPING ENVELOPES

Bror E. Hanson, Worcester, Mass., assignor to United States Envelope Company, Springfield, Mass., a corporation of Maine

Filed June 1, 1967, Ser. No. 642,786

Int. Cl. B65h *31/38*

U.S. Cl. 271—89 10 Claims

ABSTRACT OF THE DISCLOSURE

A pair of horizontally opposed tamper blades are supported, cantilever fashion, on upright posts at either side of a ramp across which envelopes are conveyed. Each blade is connected, through a cam follower link, to a rotary multi-lobe cam beneath the ramp, which cam rotates causing the blades to vibrate in their fundamental mode, and in unison with one another to align the envelopes therebetween.

SUMMARY OF THE INVENTION

This invention relates to tamping devices for use with envelope handling machines, and deals more particularly with a device which is self-contained and can be used with an inclined ramp of the type normally provided adjacent the delivery wheel of a conventional envelope flap folding and stacking mechanism.

The general object of the present invention is to provide a self-contained envelope tamping, or jogging device, having a minimum number of moving parts, as a result of which the device is rendered very reliable in service.

The drawing shows a preferred embodiment of the invention and such embodiment will be described, but it will be understood that various changes may be made from the construction disclosed, and that the drawing and description are not to be construed as defining or limiting the scope of the invention, the claims forming a part of this specification being relied upon for that purpose.

BRIEF DESCRIPTION OF THE DRAWING

FIG. 1 is a side elevational view of a preferred form of the present invention showing the delivery wheel of a conventional envelope flap folding and stacking mechanism, and also showing a generally horizontal table onto which the folded envelopes are fed by the line pressure of envelopes being continuously handled by a said delivery wheel.

FIG. 2 is a plan view of the device shown in FIG. 1 with a portion of the inclined ramp, located between the delivery wheel and the table, being broken away to reveal the cam and follower mechanism therebeneath.

DETAILED DESCRIPTION

Referring now to the drawing in greater detail, FIG. 1 shows a conventional envelope delivery wheel **10** for delivering successive completed envelopes E from a flap folding mechanism (not shown) onto a ramp **20** which is mounted in fixed relation to a stacking table **22**.

The ramp **20** is of conventional construction, having an upstream end **24** adjacent the circumference of the delivery wheel **10** for receiving envelopes E, E conveyed thereto in the notches **26, 26** of the delivery wheel **10**. As best shown in FIG. 2, the delivery wheel **10** normally comprises end discs **30, 30** which are adjustably mounted on a shaft **32**. The envelopes E, E may be held to the delivery wheel **10** by providing a negative atmospheric pressure at the circumference of the wheel **10** in the area of the notches **26, 26** through suitable means, indicated generally at **34**, located intermediate the end discs **30, 30**. Still with reference to the conventional structure shown, guide clips **36, 36** may be provided on the upstream end of the ramp **24** for guiding the envelopes E, E onto the ramp **20**. The ramp **20** may be supported on a horizontally extending bar **40** adjacent its upstream end, with the downstream end of the ramp **20** resting upon the stacking table **22**.

In accordance with the present invention, means is provided at either side of the ramp **20** for tamping or jogging the ends of the envelopes E, E as they are being fed down the ramp **20** in order to align them one behind another so that groups thereof can be more readily packed in containers or the like at some downstream location on the stacking table **22**. Preferably, and as shown, the mechanism for tamping the ends of the envelopes comprises a pair of generally vertically disposed tamper blades **42, 42** which are mounted, cantilever fashion, on upright posts **44, 44** at the side of the ramp **20**. The lower end of each post **44** is mounted in a block **46**, which block is attached to the underside of the ramp **20**. These posts **44, 44** provide a convenient means for clamping the downstream end of each tamper blade **42**, and it is a feature of the present invention that the blades **42, 42** are fabricated from a resilient material, such as spring steel, so that the free end portions thereof can be vibrated laterally toward and away from one another in a fundamental vibration mode consistent with the cantilevered mounting.

While the downstream end portion of each tamper blade **42** may take any convenient shape, preferably, and as shown in FIG. 2, each such blade includes a laterally outwardly bent portion adjacent its downstream end, which portion is welded or otherwise secured to the lateral edge of its associated upright post **44**. The intermediate portion of each blade **42** is generally flat so as to abut a large number of envelopes E, E during its vibratory motion. The upstream end of each tamper blade **42** is preferably flared outwardly as shown in FIG. 2 to guide the envelopes E, E between the tamper blades **42, 42** as they are being fed by the line pressure of oncoming envelopes across the ramp **20**.

In further accordance with the present invention, means is provided for vibrating the free end portions of the blades **42, 42** in unison toward and away from one another in a tamping, or jogging, action which serves to align the envelopes on the ramp. A cam follower link **48** associated with each tamper blade **42** carries a cam follower **50** at its inner end, and the resiliency of the blade **42** holds the cam follower **50** in engagement with a rotary multi-lobe cam **52** which is rotatably supported below the ramp **20**.

Each cam follower link **48** is generally L-shaped having an upstanding leg which is welded or otherwise secured to the tamper blade **42** intermediate the upstream and downstream ends thereof, and preferably at a point such that the blade can be vibrated in its fundamental mode as a result of lateral movement of the link **48** in a direction perpendicular to the neutral axis of the tamper blade **42**. Preferably, each link **48** is connected to its associated blade **42** approximately one third the distance between the downstream and upstream ends. As best shown in FIG. 2, the link **48** includes a horizontally extending leg of adjustable length, being made in two parts to permit use of the device in tamping or jogging envelopes of various lengths.

The multi-lobe cam **52** defines at least one pair of diametrically opposed lobes for simultaneously urging the cam followers **50, 50** in an outward lateral direction, and for simultaneously allowing the resiliency of the blades **42** to return the cam followers inwardly in a tamping motion for aligning envelopes on the ramp **20**. As shown

two such pairs of diametrically opposed lobes are provided on the cam **52**, which cam is secured to the output shaft **54** of an electric motor **56**. The motor **56** is mounted on an annular ring **58**, which ring **58** is in turn bolted to four depending studs **60**, **60** attached to the underside of the ramp **20**.

The invention claimed is:

1. A device for use with a generally horizontal ramp across which a plurality of envelopes are adapted to be conveyed in edgewise front to back relation, said device comprising a pair of vertically disposed tamper blades movably mounted cantilever fashion at opposite sides of said ramp for flexing movement toward and away from the side edges of the envelopes on said ramp, and means for so flexing said blades in unison toward and away from one another for aligning said envelopes on said ramp.

2. A device as set forth in claim **1** and further characterized by means for clamping each of said tamper blades adjacent its downstream end, so that the upstream end thereof can be vibrated in a fundamental vibration mode consistent with its cantilevered mounting.

3. A device for use with a generally horizontal ramp across which a plurality of envelopes are adapted to be conveyed in edgewise front to back relation, said device comprising a pair of vertically disposed tamper blades movably mounted at opposite sides of said ramp for movement toward and away from the side edges of the envelopes on said ramp, means for moving said blades in unison toward and away from one another for aligning said envelopes on said ramp, said means for moving said blades comprising a continuously driven cam rotatably supported below said ramp, and two cam followers having inner ends for engaging diametrically opposed points on said cam, said cam followers having opposite ends connected to said blades respectively.

4. A device as set forth in claim **3** and further characterized by means for clamping each of said tamper blades adjacent its downstream end, the upstream ends of said blades having outwardly formed lips for receiving non-aligned envelopes therebetween.

5. A device as set forth in claim **4** and further characterized in that said opposite ends of said cam followers are connected to said blades intermediate said upstream and downstream ends respectively.

6. A device as set forth in claim **5** and further characterized in that said rotary cam has at least one pair of diametrically opposed cam lobes for moving said blades synchronously.

7. A device as set forth in claim **6** and further characterized in that said rotary cam has more than one such pair of cam lobes, and said blade moving means further including a continuously driven motor having a driven shaft upon which said cam is mounted.

8. A device as set forth in claim **7** and further characterized in that said blades are formed of resilient material, and wherein said blade supporting means comprises an upright post associated with each of said blades, said blades being mounted in cantilever fashion to posts so that downstream portions of said blades adjacent said posts flex causing oscillatory movement of the upstream portions.

9. A device as set forth in claim **8** and further characterized and that said opposite cam follower ends are connected to said blades approximately one third of the distance between said post associated downstream blade ends and said upstream ends respectively.

10. A device as set forth in claim **8** and further characterized in that said opposite cam follower ends are connected to said blades at points between said post associated downstream blade ends and said upstream ends respectively such that said blades are vibrated in their fundamental mode.

References Cited

UNITED STATES PATENTS

2,602,554	7/1952	Griffith	198—29
2,815,111	12/1957	Capps et al.	198—29
2,853,298	9/1958	Faeber	271—89
3,175,822	3/1965	Benson	271—89
3,236,162	2/1966	Reist	271—89

ANDRES H. NIELSEN, *Primary Examiner.*