

June 19, 1923.

J. C. GUNDERSON

1,459,179

ENVELOPE FEEDING ATTACHMENT

Filed June 4, 1921

2 Sheets-Sheet 1

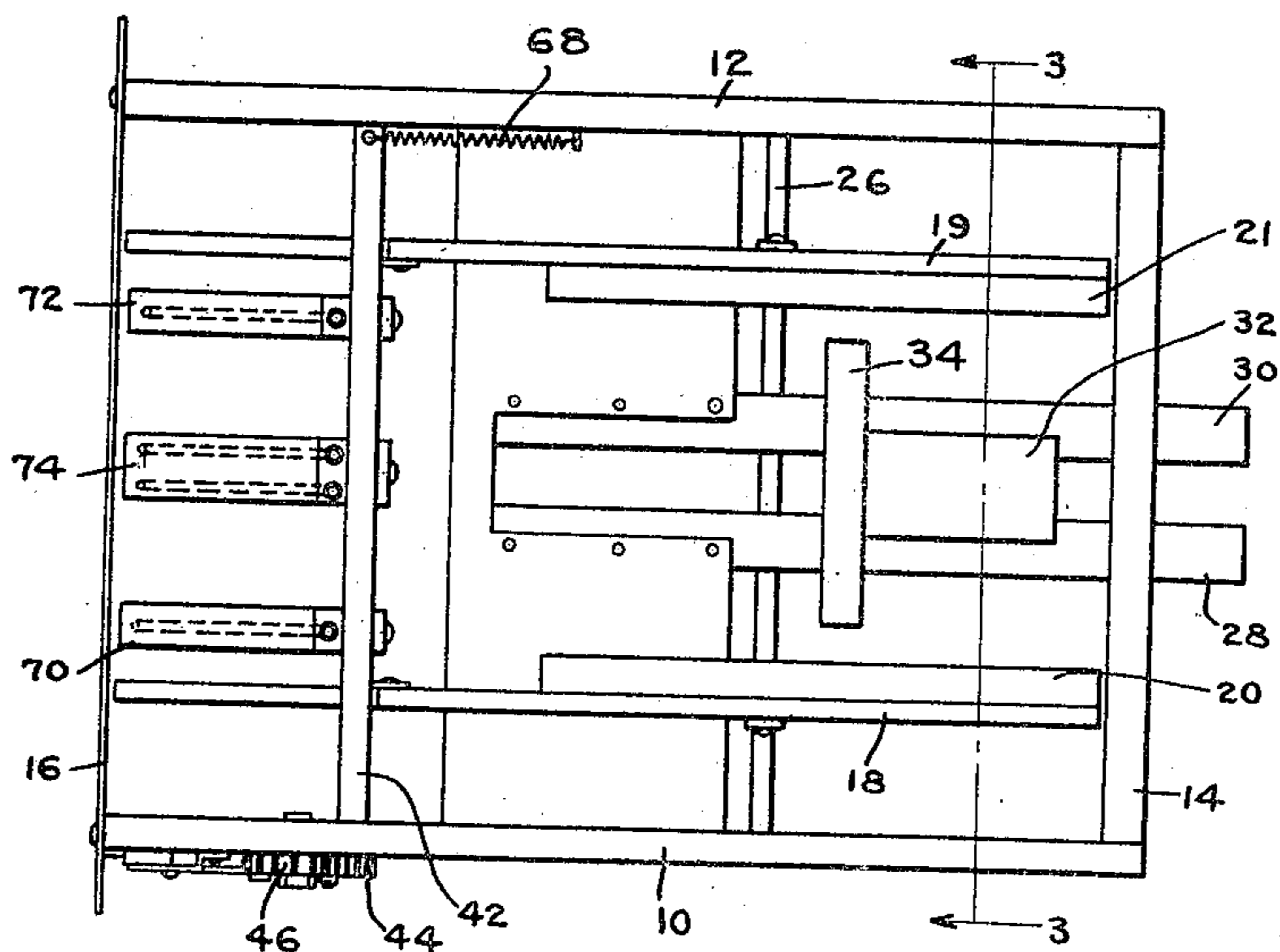


FIG-1.

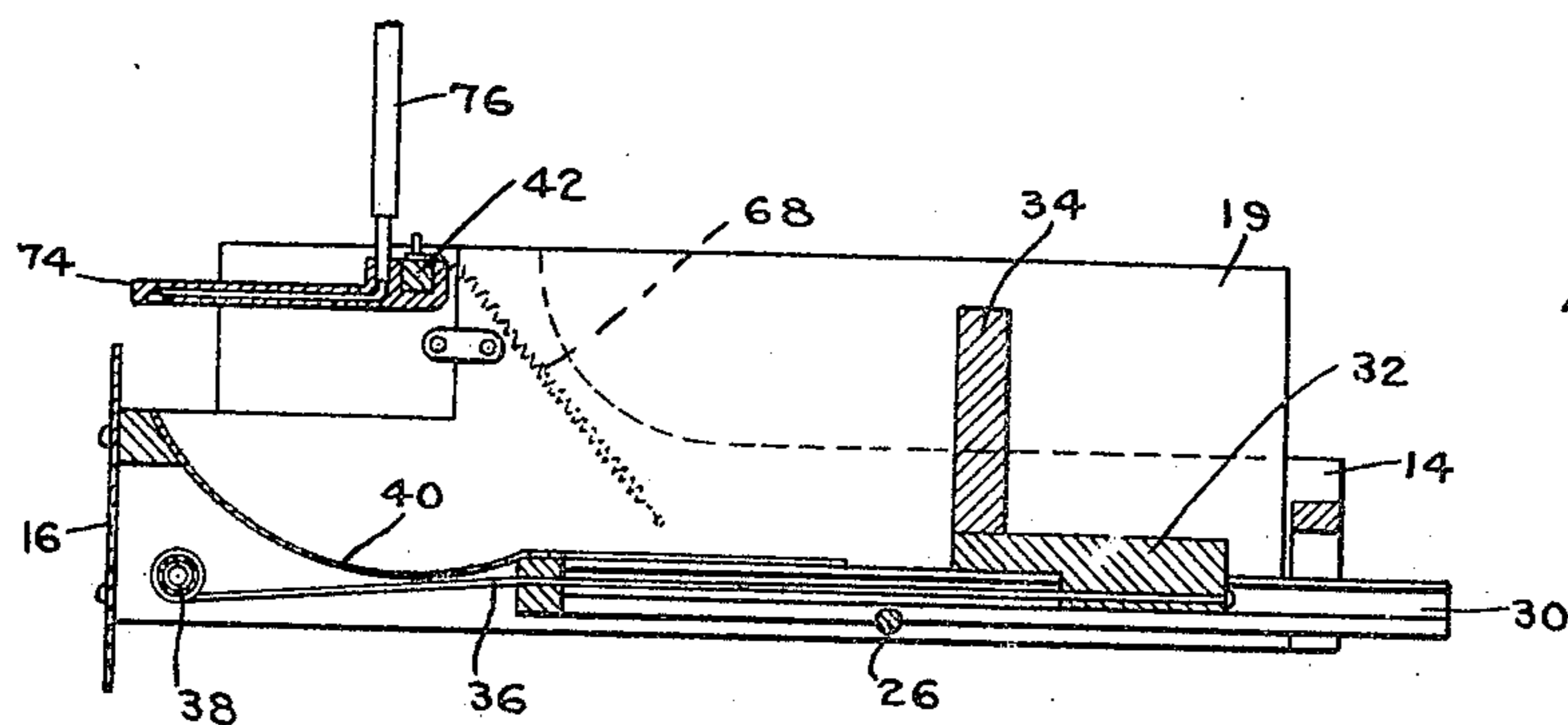


FIG. -2.

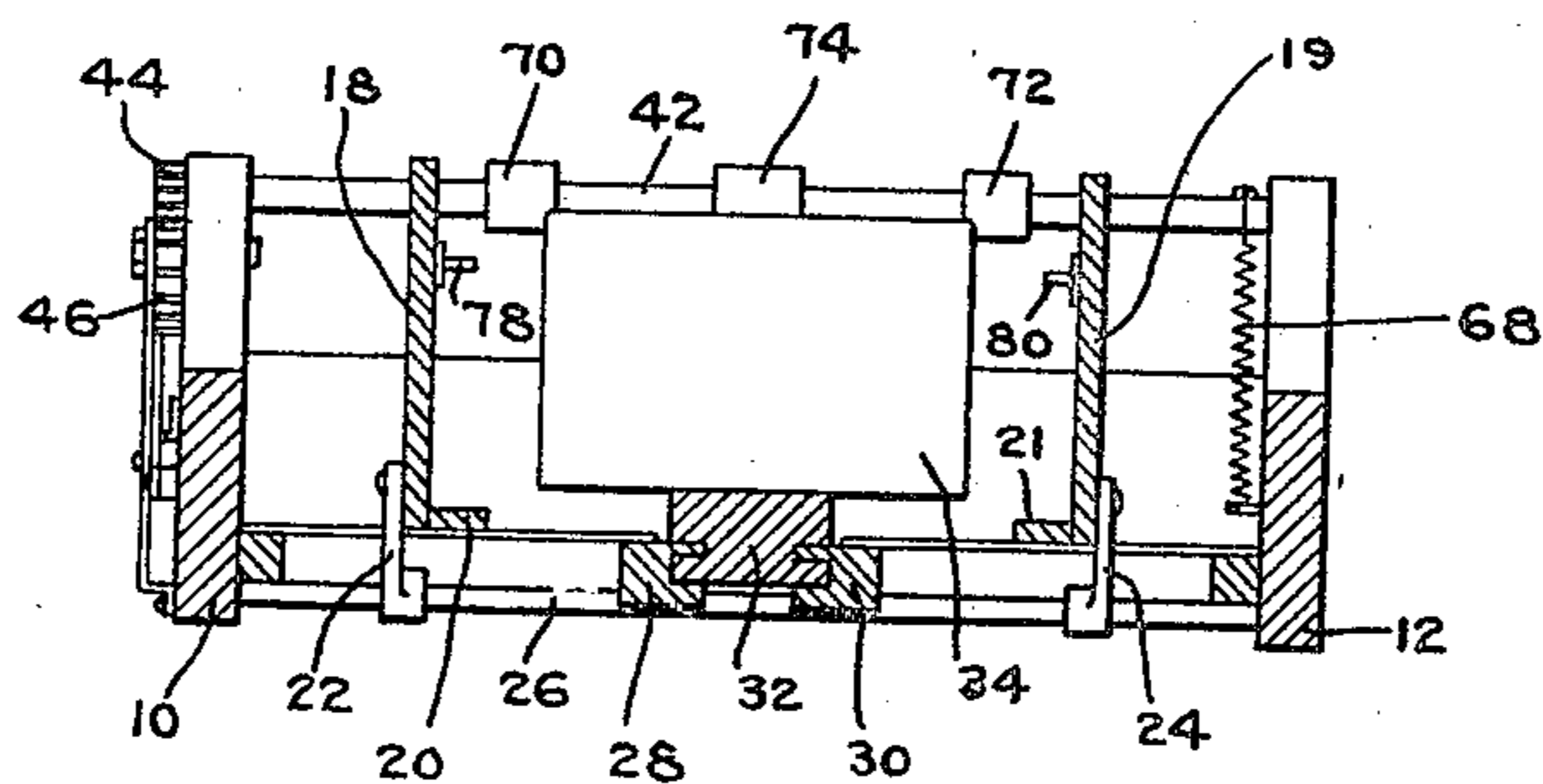


Fig-3.

INVENTOR:
J. C. GUNDERSON.
BY Whiteley and Ruckman
ATTORNEY

June 19, 1923.

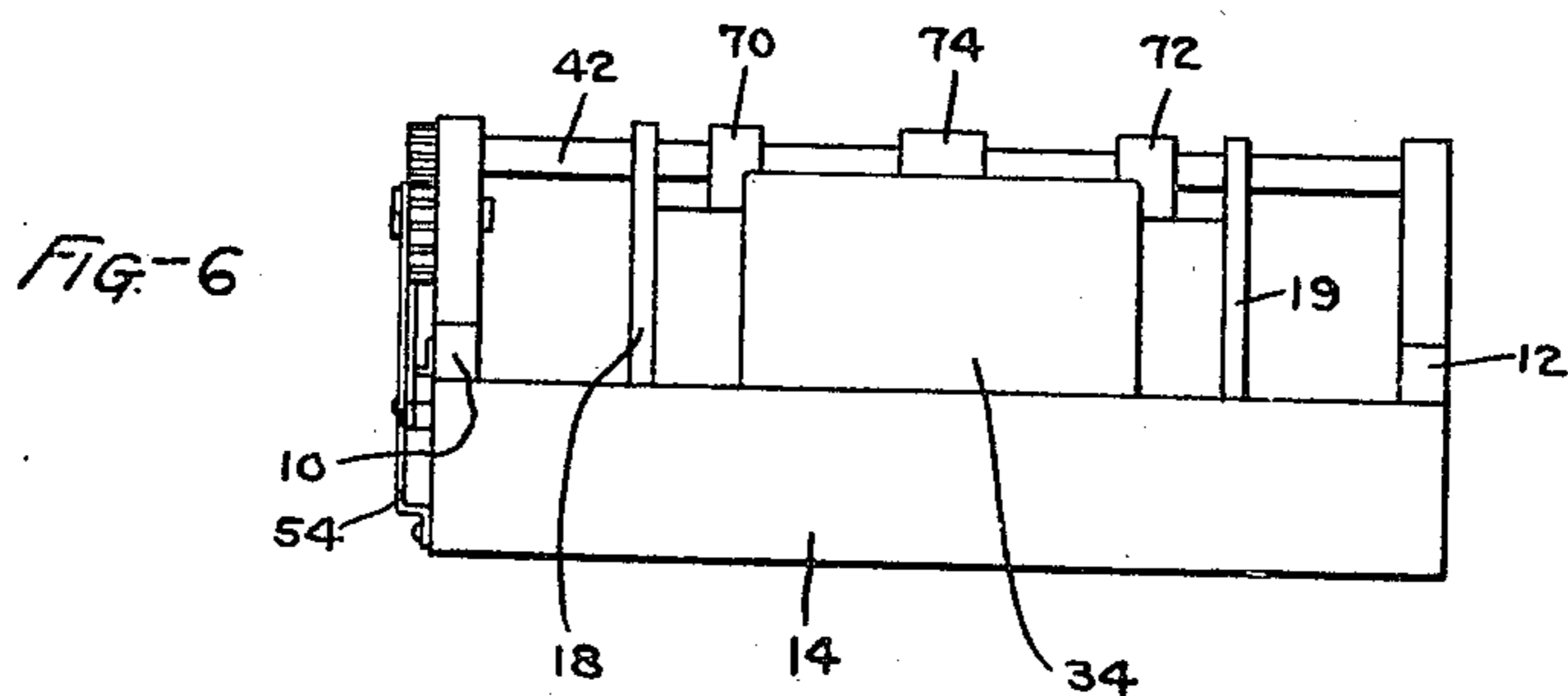
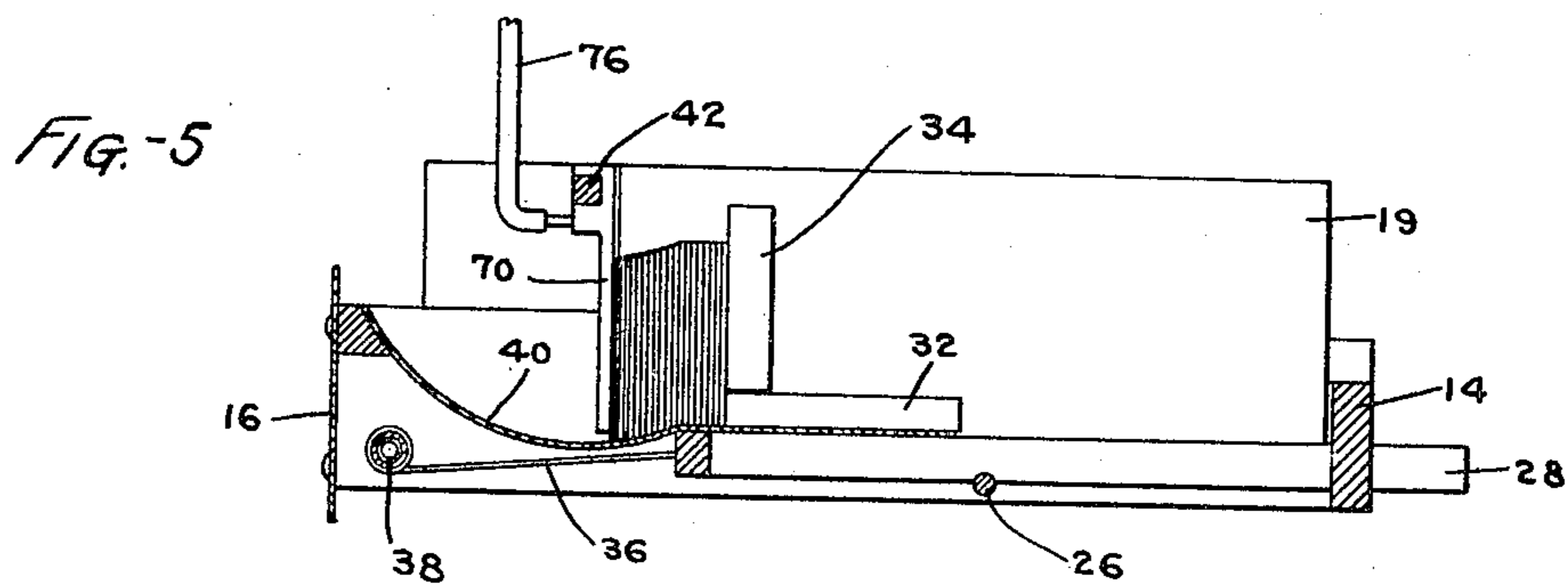
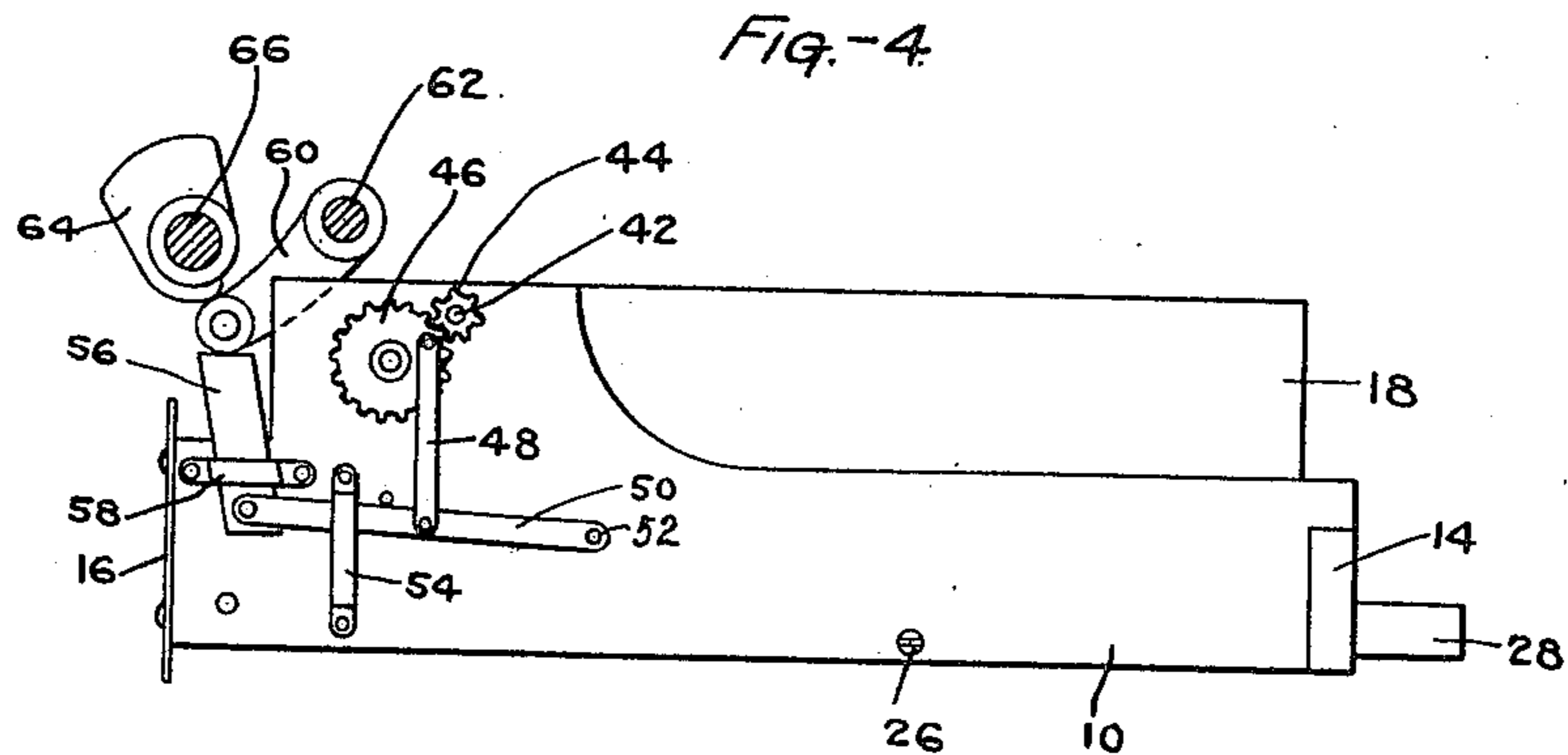
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2 Sheets-Sheet 2



INVENTOR:
J. C. GUNDERSON.
BY Whiteley and Ruckman
ATTORNEYS.

Patented June 19, 1923.

1,459,179

UNITED STATES PATENT OFFICE.

JOSEPH C. GUNDERSON, OF GRAND FORKS, NORTH DAKOTA.

ENVELOPE-FEEDING ATTACHMENT.

Application filed June 4, 1921. Serial No. 475,157.

To all whom it may concern:

Be it known that I, JOSEPH C. GUNDERSON, a citizen of the United States, residing at Grand Forks, in the county of Grand Forks and State of North Dakota, have invented certain new and useful Improvements in Envelope-Feeding Attachments, of which the following is a specification.

My invention relates to envelope feeding attachments, and an object is to provide a suction device for removing envelopes one at a time from a bunch of envelopes standing on edge and for bringing them into position where they may be readily delivered to a printing press. It has been customary to employ a suction device for picking up sheets of paper from a stack in which the sheets are piled one on top of another but this arrangement is not well adapted for use in connection with envelopes. I, therefore, provide an attachment by means of which the envelopes are taken from a series standing on edge.

The full objects and advantages of my invention will appear in connection with the detailed description, and the novel features of my inventive idea will be particularly pointed out in the claims.

In the accompanying drawings which illustrate the application of my invention, Fig. 1 is a top plan view of my device. Fig. 2 is a view in longitudinal section. Fig. 3 is a view in transverse section on the line 3—3 of Fig. 1. Fig. 4 is a side elevational view. Fig. 5 is a view in longitudinal section showing the suction device in position for removing an envelope from a bunch of envelopes standing on edge. Fig. 6 is a front elevational view.

In carrying out my invention, I provide an attachment which is adapted to be used in connection with the customary suction feeder which delivers sheets of paper one at a time from a vertical stack to a printing press. Since a feeder of this kind is well known in the art and constitutes no part of my invention, it is not necessary to illustrate and describe the same.

Referring to the construction shown in the drawings, the numerals 10 and 12 designate side members of a magazine for receiving envelopes. These side members are connected at the front by a bar 14 and at the rear by a plate 16. Two guides 18 and 19 having inturned flanges 20 and 21 on their lower sides are mounted in the boxlike struc-

ture thus formed and are adapted for adjustment according to the length of the envelopes by having attached depending metallic pieces 22 and 24 which slidably engage a transverse rod 26. Supported at the bottom of the magazine and extending longitudinally in spaced relation at the middle thereof, are two grooved rails 28 and 30, the grooves of which receive a tongue on the lower side of a plate 32, the rear end of which carries an upstanding follower 34. This follower is normally urged rearwardly by means of a flexible element 36, the front end of which is attached to the plate 32 and the rear end of which winds around a spring tensioned roller 38 mounted at the rear of the magazine. Also at the rear of the magazine is a curved plate 40, the center of curvature of which is a shaft 42 mounted in the upwardly extended rear ends of the side members 10 and 12. Secured on one of the outer ends of the shaft 42 is a pinion 44 which meshes with a gear 46 rotatably mounted on one of the side members. Pivoted to the gear 46 near its margin is a connecting rod 48, the lower end of which is pivotally attached to an intermediate portion of a lever 50 which is pivoted to the side member, the rear end of this lever being guided by a strap 54. The rear end of the lever 50 carries an upstanding block 56 adapted to reciprocate in a guide 58. In operation, the free end of an arm 60 which may be a part of the customary feeder rests upon the block 56. The arm 60 is secured to a rod 62 in the usual manner. A cam 64 mounted on a shaft 66 of the customary feeder engages and depresses the arm 60 once during each rotation of the shaft 66. This operation turns the shaft 42 and the parts associated therewith into the position shown in Fig. 5. A spring 68 serves to return the shaft 42 to the position shown in Fig. 2. Secured to the shaft 42 is a suction device which includes a plurality of fingers. As shown, there are two end fingers 70 and 72 each having a single air passageway and a central finger 74 having a double air passageway. These passageways as best shown in Fig. 2 are connected at their ends near the shaft 42 with flexible suction tubes 76 such as used in connection with the customary feeder. The other ends of these passageways open through the lower surfaces of the fingers which come into contact with the end envelope when the suction device is de-

pressed. Pins 78 and 80 shown in Fig. 3 serve as stops for the rear of the bunch of envelopes and permit the rearmost one to be picked up by the suction device.

5 The operation and advantages of my invention will be readily understood from the foregoing description. Assuming the magazine to be empty, the follower 34 is drawn forwardly and a bunch of envelopes standing on edge is placed at the rear of the follower preferably with the flap edges downward. Each time the suction device is depressed and comes into contact with the rear envelope, the suction induced through the fingers causes this envelope to be held in contact therewith and when the suction device is swung up by the action of the spring 68, the envelope is brought into horizontal position for delivery to the customary grasping part of the well known feeder which carries it to the printing press.

By referring to Figs. 2 and 5 it will be understood that in case an envelope should be released from the suction device while being lifted from vertical to horizontal position, the curvature of the member 40 permits such envelope to be pushed back without being crumpled and that it will be engaged and lifted when the suction device begins its next upward movement. Also by referring to Figs. 2 and 5 it will be understood that since the curvature of the member 40 begins in front of the suction device, when the latter is in its vertical position the end envelopes are freed at their bottom edges so that the envelope at the rear of the bunch of envelopes may be more readily picked up.

I claim:

40 1. An envelope feeding attachment comprising a magazine, means for supporting a bunch of envelopes standing on edge in said magazine, a shaft mounted near one end of

said magazine, a suction device secured to said shaft, said suction device being adapted to engage the end envelope of said bunch, a curved member forming a continuation of the bottom of said magazine and having said shaft as its center of curvature, and means for oscillating said shaft to lift the engaged envelope from vertical to horizontal position.

2. An envelope feeding attachment comprising a magazine, means for supporting a bunch of envelopes standing on edge in said magazine, a shaft mounted near one end of said magazine, a suction device secured to said shaft, said suction device being adapted to engage the end envelope of said bunch, a curved member forming a continuation of the bottom of said magazine, the curvature of said member beginning in front of said suction device when the latter is in its vertical position so that the end envelopes are freed at their bottom edges, and means for oscillating said shaft to lift the engaged envelope from vertical to horizontal position.

3. An envelope feeding attachment comprising a magazine, means for supporting a bunch of envelopes standing on edge in said magazine, a shaft mounted near one end of said magazine, suction fingers secured to said shaft, a pinion secured to one end of said shaft, a gear meshing with said pinion, a connecting rod attached to said gear, a lever to which said connecting rod is attached, means for depressing the free end of said lever to turn said shaft in one direction and cause said fingers to engage an envelope, and a spring for turning said shaft in the opposite direction to cause said fingers to remove the envelopes one at a time from the end of the bunch.

In testimony whereof I hereunto affix my signature.

JOSEPH C. GUNDERSON.