

No. 636,690.

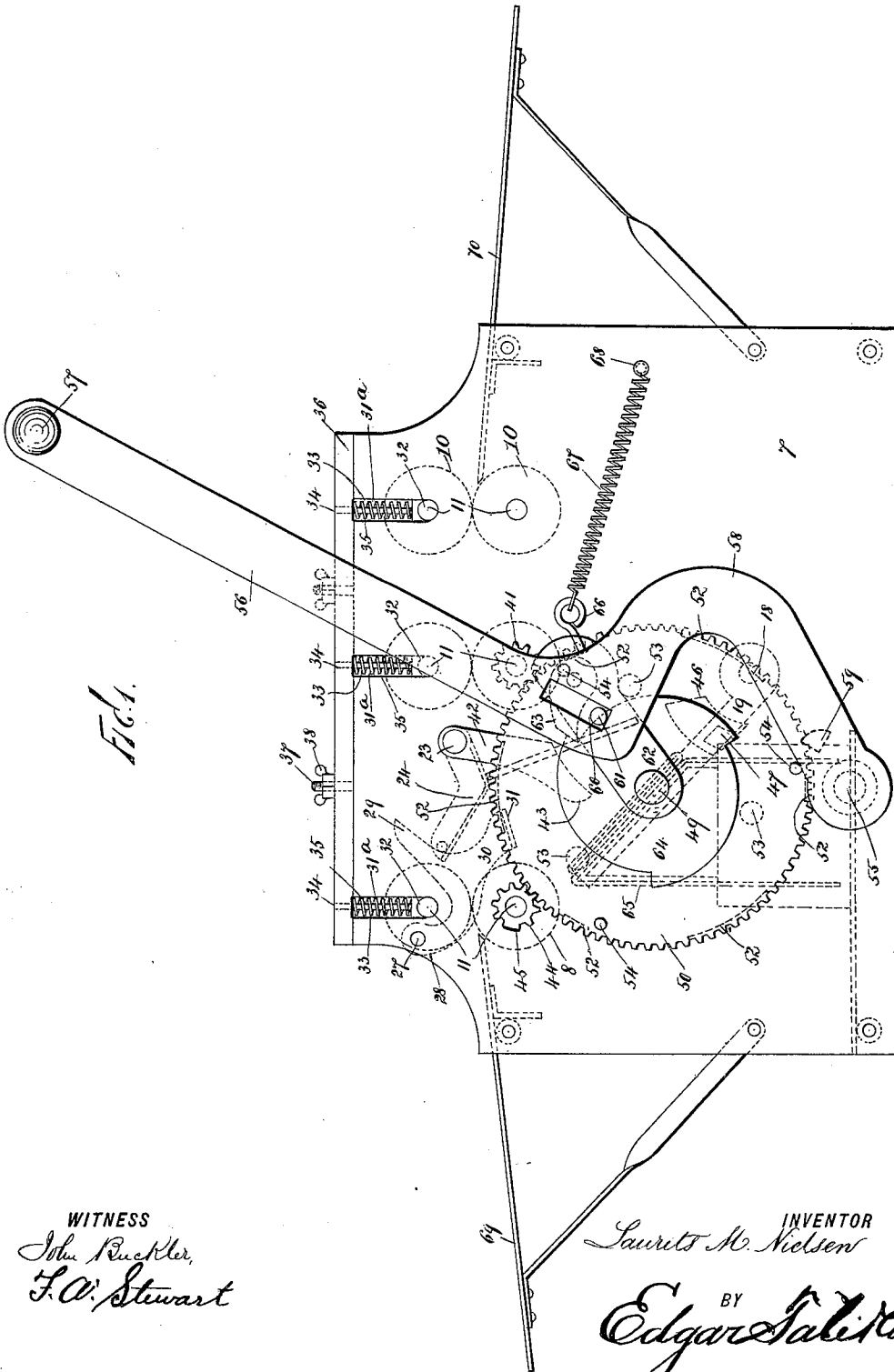
Patented Nov. 7, 1899.

L. M. NIELSEN.
MACHINE FOR SEALING ENVELOPS.

(Application filed Dec. 24, 1898.)

(No Model.)

5 Sheets—Sheet 1.



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5 Sheets—Sheet 2.

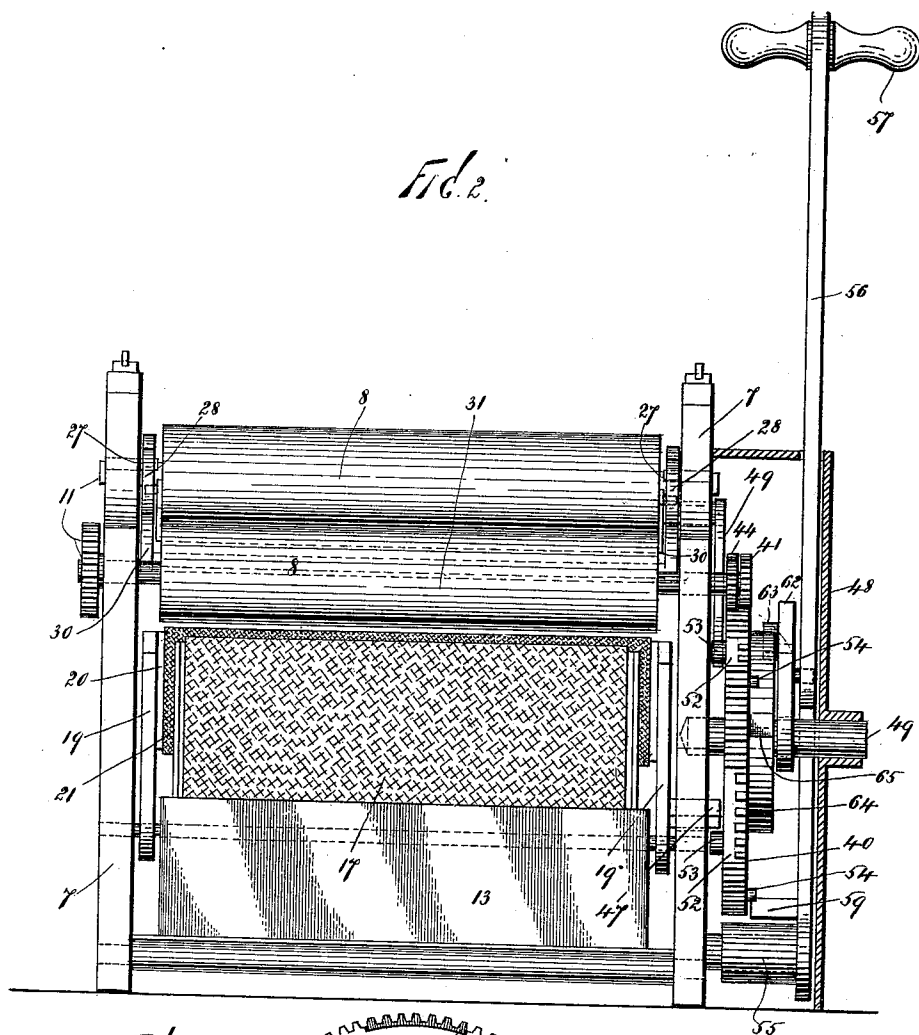
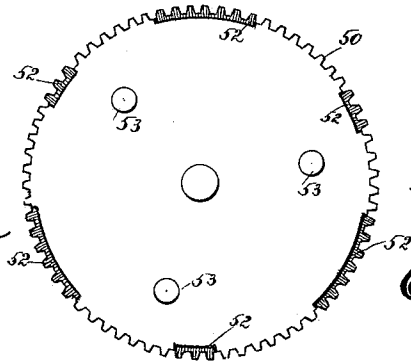


Fig. 1.



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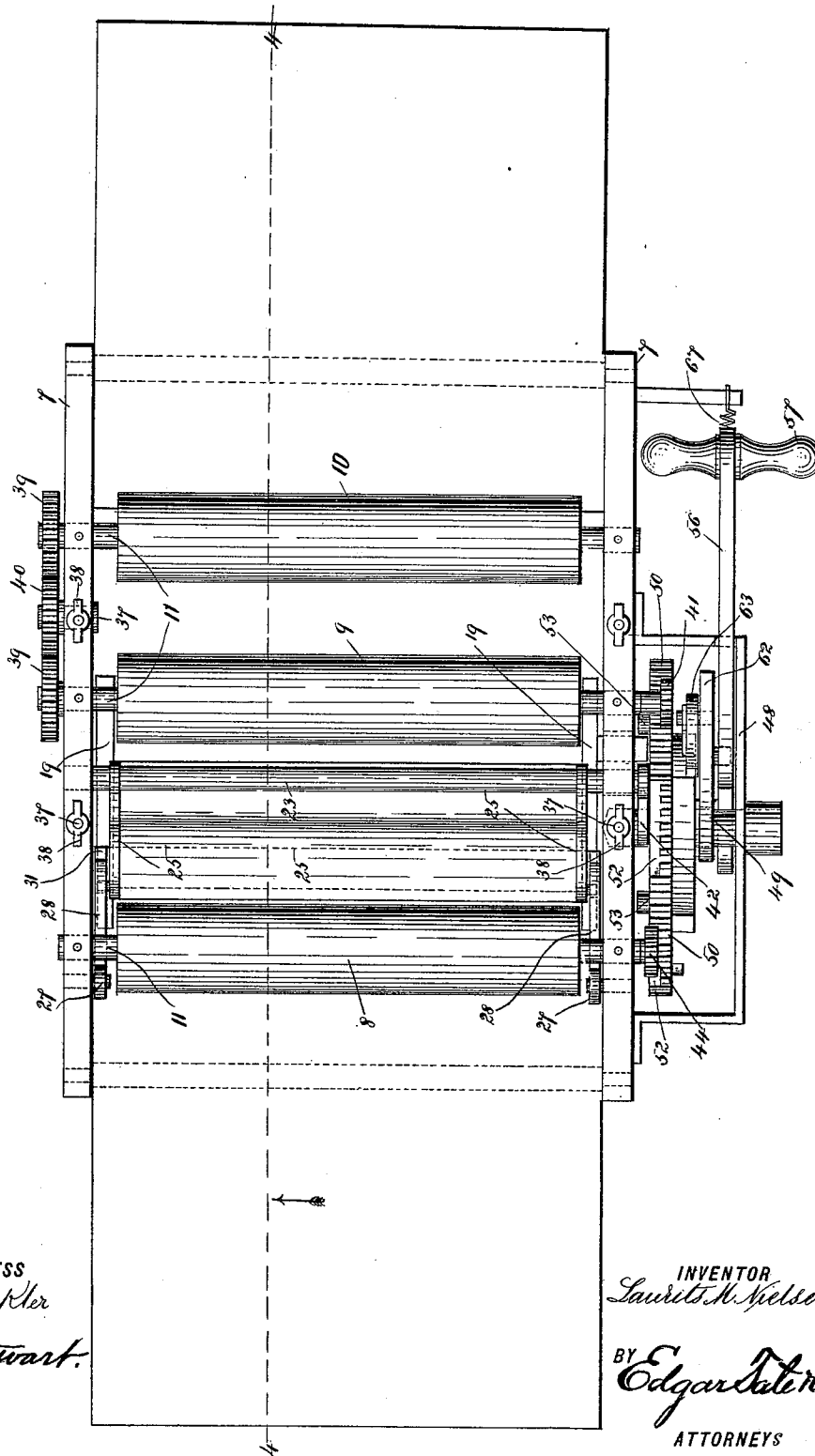
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5 Sheets—Sheet 3.

Fig. 3.



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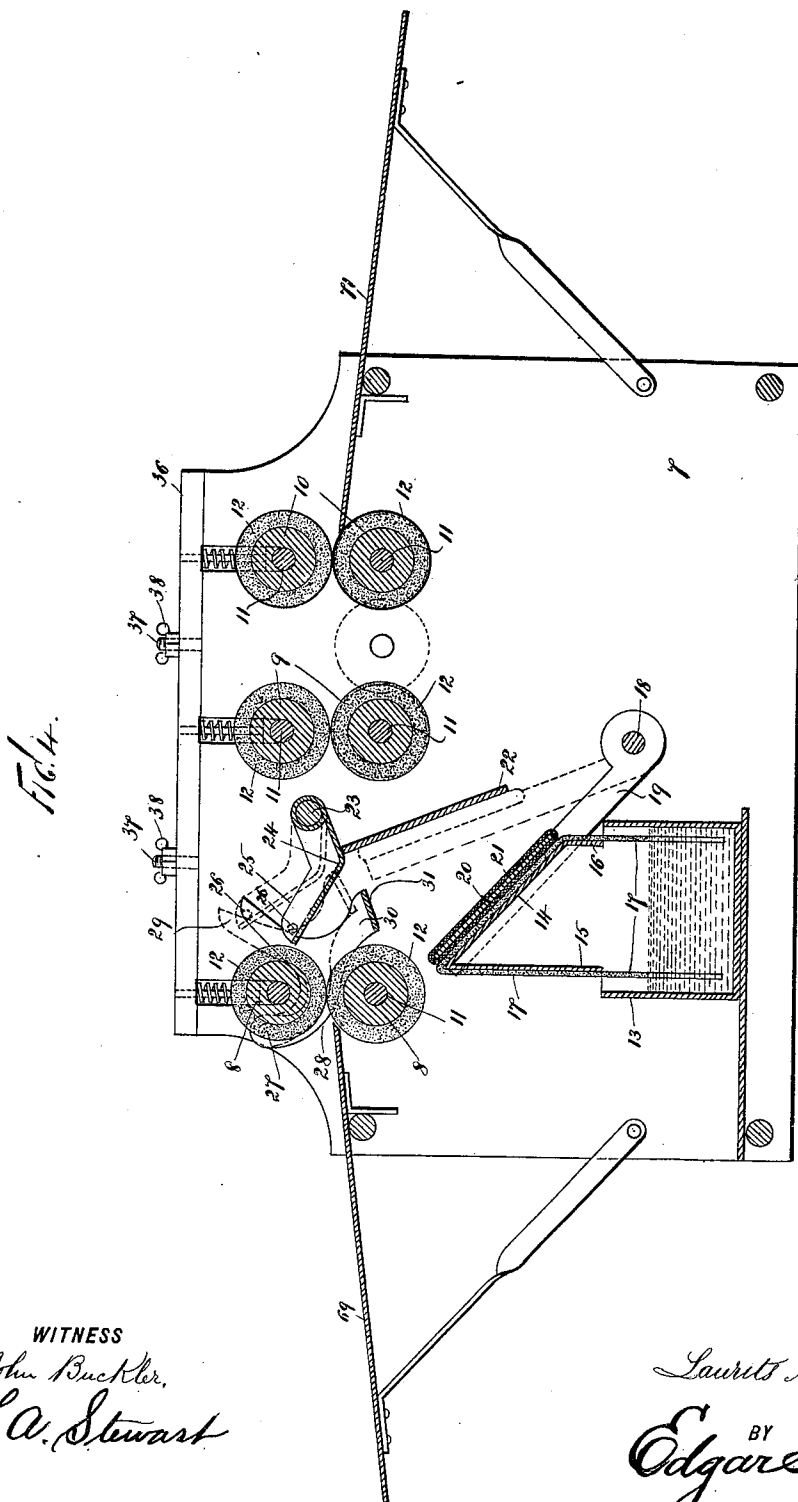
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(Application filed Dec. 24, 1898.)

5 Sheets—Sheet 4.



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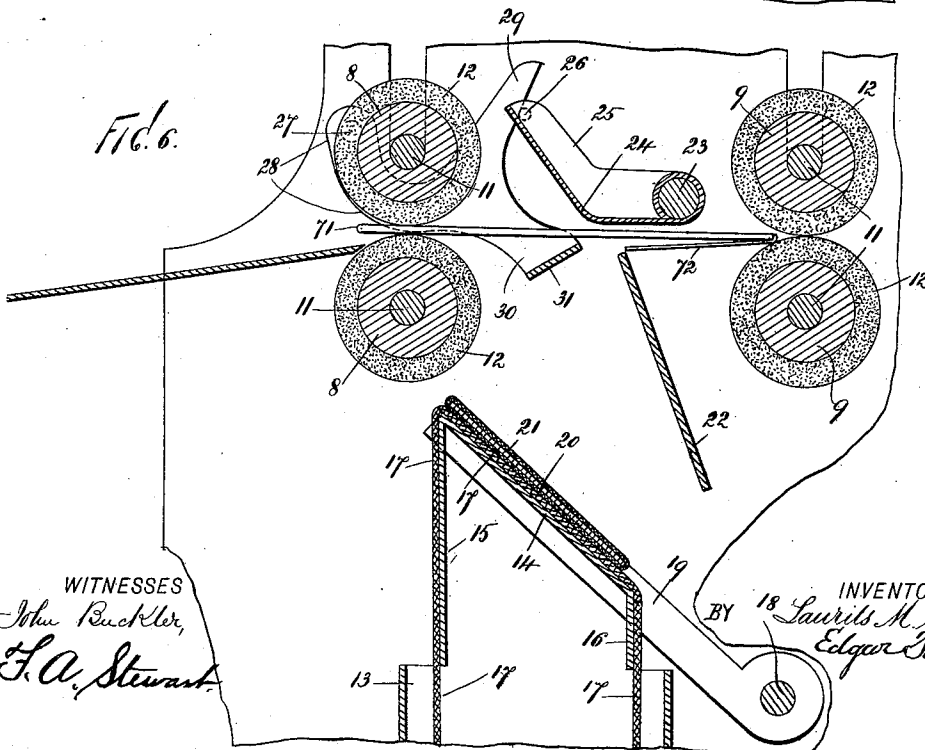
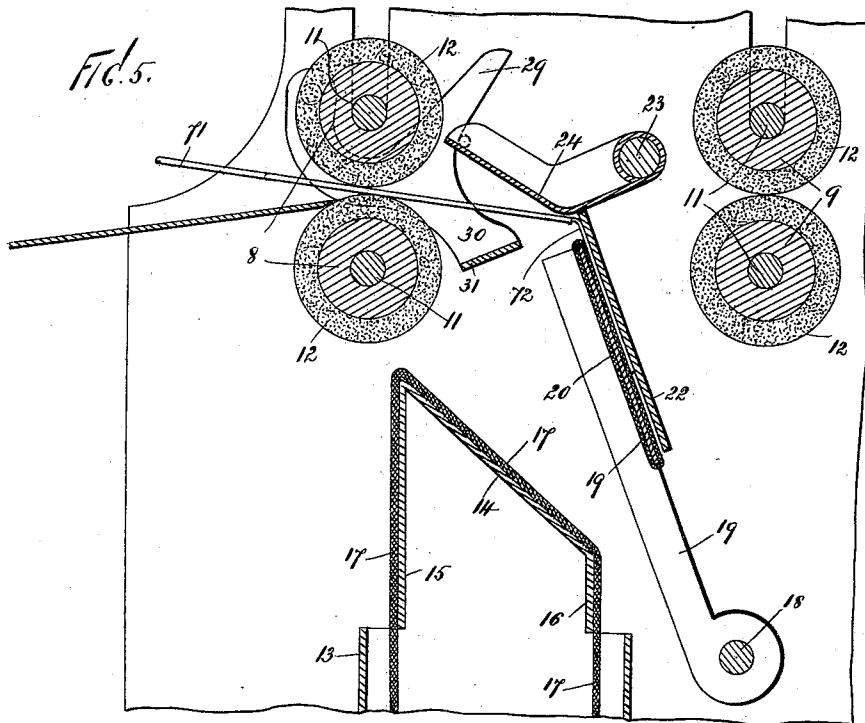
L. M. NIELSEN.

MACHINE FOR SEALING ENVELOPS.

(Application filed Dec. 24, 1898.)

(No Model.)

5 Sheets—Sheet 5.



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UNITED STATES PATENT OFFICE.

LAURITS M. NIELSEN, OF NEW YORK, N. Y.

MACHINE FOR SEALING ENVELOPS.

SPECIFICATION forming part of Letters Patent No. 636,690, dated November 7, 1899.

Application filed December 24, 1898. Serial No. 700,273. (No model.)

To all whom it may concern:

Be it known that I, LAURITS M. NIELSEN, a citizen of the United States, residing at New York, (Brooklyn,) in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for Sealing Envelops, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to means for sealing envelops; and the object thereof is to provide an improved machine for this purpose by means of which the flap of the envelop is moistened and the envelop sealed as it passes through the machine.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is a side view of my improved machine; Fig. 2, a front end view thereof; Fig. 3, a plan view with the top plate of the machine-frame removed; Fig. 4, a longitudinal section on the line 4 4 of Fig. 3. Figs. 5 and 6 are sectional views similar to Fig. 4, showing only parts of the machine and showing said parts in different positions, so as to illustrate the operation thereof; and Fig. 7, an inside view of a gear-wheel which I employ.

In the drawings forming part of this specification the separate parts of my improvement are designated by the same numerals of reference in each of the views, and in the practice of my invention I provide a machine for the purpose herein described which comprises a main frame preferably composed of two similar side plates 7.

Mounted between the side plates 7 of the frame of the machine are three pairs of rollers, said pairs of rollers being arranged as shown in Figs. 3 and 4 and being designated by the reference-numerals 8, 9, and 10. These pairs of rollers are each arranged in a vertical plane, and the distance between the first and second is preferably about twice as great as the distance between the second and third pairs. Each of the rollers of each of the pairs 8, 9, and 10 is provided with a central shaft 11 and a covering 12, of felt or other suitable material, designed to give said rollers a yielding and slightly-elastic character.

Below and rearwardly of the front rollers

8 is placed a tank or receptacle 13, designed to receive water, and mounted over said receptacle, as shown in Fig. 4, and in the downwardly and backwardly inclined position is a support 14, having a vertically-arranged front portion 15 and a similar back portion 16.

The front and back portions 15 and 16 of the support 14 terminate within the front and back portions, respectively, of the tank 13, and in practice I pass over the support 14 a sheet 17, composed of lamp-wicking or other suitable capillary substance and the sides of which hang within the tank 13, as clearly shown in Fig. 4.

Rearwardly of the tank 13 is placed a shaft 18, provided with two arms 19, as shown in Figs. 2 and 4, which are connected by a cross-plate 20, provided with a fabric covering 21, of lamp-wicking or other suitable capillary substance, which normally rests on the covering of the support 14, which is also composed of similar material, as hereinbefore described.

As thus constructed it will be seen that the sheet or covering 17 of the support 14, together with the covering 21 of the plate 20, will be constantly moistened by the water in the tank 13.

Arranged transversely of the machine, above and slightly in front of the shaft 18, is a plate 22, the upper edge of which is slightly below the bottom of the upper rollers of each of the pairs 8 and 9, and above and to the rear of the plate 22 is a shaft 23, on which is mounted a downwardly and upwardly-inclined shield 24, provided at each end with a flange 25, said shield being projected forwardly and the flanges 25 thereof being provided at their forward ends each with an outwardly-directed pin 26, and pivoted to each of the side plates 7 at the ends of the upper roller 8 and between said ends and said side plates, as shown at 27, are downwardly and backwardly curved arms 28, each of which is provided with an upwardly and backwardly directed extension 29 and a downwardly and backwardly directed extension 30, the downwardly and backwardly directed extension 30 of the arms 28 being connected by a cross-plate 31, this construction being best shown in Figs. 4, 5, and 6, the normal position of these parts when the machine is not in operation being shown in Fig. 4.

Each of the upper rollers of each of the pairs 8, 9, and 10 is spring-depressed, as shown at 31^a, the shafts of said rollers at each end being provided with a bearing 32, mounted in a vertical recess 33, formed in the sides 7 of the casing, and each of said bearings is provided with an upwardly-directed pin 34, and wound on each of said pins, within each of said recesses, is a spiral spring 35, and the springs 35 are held in place at each side of the machine by a cross-bar 36, and said cross-bars are held in place by bolts 37, provided with thumb-nuts 38. The upper rollers of the two rear sets 9 and 10 are each provided at one side of the machine with a gear-wheel 39, between which is placed an intermediate gear-wheel 40, and the shaft of the lower roller 9 is provided at the end thereof opposite the gear-wheel 39 with a pinion 41.

The shaft 23, which carries the shield 24, is provided at the end thereof adjacent to the pinion 41 with a downwardly-directed arm 42, the lower end of which is curved forwardly and downwardly, as shown at 43, and the corresponding end of the shaft 11 of the lower forward roller 8 is provided with a pinion 44, a portion of the teeth of which at one side is preferably cut out, as shown at 45.

It will be understood that the pinion 41, the arm 42, and the pinion 44 are on the outer side 7 of one of the sides of the frame or casing of the machine, and said side of the frame or casing of the machine is provided in front of and slightly above the shaft 18 with an opening 46, (shown in dotted lines in Fig. 1 and in full lines in Fig. 2,) through which passes a lug or projection 47, formed on or secured to the adjacent arm 19 of the shaft 18. The said side plate 7 of the frame or casing is provided on the side thereof on which the pinion 41, the arm 42, and the pinion 44 are located with a bracket 48, which, together with the said side plate, supports a short shaft 49, and mounted on said shaft is a large double-gear wheel 50, which is adapted to operate both of the pinions 41 and 44.

An inside view of the gear-wheel 50 is given in Fig. 7, and a portion of the teeth on said wheel is cut away on the inner perimeter of said wheel at different points, as shown at 52, the object of which is to give the pinion 44 an intermittent movement; but said gear-teeth are continuous on the outer perimeter of said wheel, and the pinion 41 is operated continuously when the gear-wheel 50 is in motion. Spaces where the said teeth are cut away are longer than the others, thus varying the time during which the pinion 44, together with the roller on the shaft on which it is mounted, will stand still as the wheel 50 revolves, and it will also be observed that these spaces 52 are equidistant on the perimeter of said wheel. The wheel 50 is also provided on its inner side with three lugs or projections 53, which operate the arm 42, as hereinafter described, and said wheel is provided on its outer side with three pins 54, the purpose of which will be

hereinafter described, and the lugs 53 and the pins 54 are each arranged in a circle on said wheel and are equidistant.

Pivoted at 55, below the shaft 49 and the gear-wheel 50, is a lever-arm 56, provided at its upper end with a handle 57, and said lever-arm adjacent to its pivotal support is provided with a backwardly-directed yoke-shaped portion 58 and adjacent to its lower end with a lug or projection 59 and at the upper end of the yoke-shaped portion 58 with a slot 60, through which passes a pin 61, secured to or formed on an arm 62, rigidly secured to the shaft 49.

The arm 62 projects radially of the gear-wheel 50 and is provided with a pivoted pawl 63, which operates in connection with a ratchet-disk 64, which is also secured to the shaft 49 and the perimeter of which is provided with three equidistant teeth or projections 65, and I also preferably connect with the lever-arm 56 at 66 a strong contractile spring 67, one end of which is secured to the sides 7 of the frame or casing at 68.

The front of the machine is provided with a plate or table 69, which extends backwardly and is intended to guide an envelop between the front pair of rollers 8, as hereinafter described, and the rear of the machine is also provided with a corresponding plate or table 70, which is intended to receive the sealed envelop from the rear rollers 10.

The operation will be readily understood from the foregoing description when taken in connection with the accompanying drawings and the following statement thereof, it being also understood that the normal position of the parts when the machine is not in operation is that shown in Fig. 1.

The envelop, with the flap open, is placed on the plate or table 69 and shoved forward until the flap enters the space between the rollers 8. The lever-arm 56 is then pulled forwardly and the rollers 8 are revolved by the wheel 50. At each forward movement of the lever-arm 56 the gear-wheel 50 is revolved through one-third of a revolution, and this movement of said wheel and said lever is limited by one of the pins 54 on said wheel coming in contact with the lug or projection 59 on the lower end of said lever-arm. After each forward movement of said lever-arm the spring 67 returns it to the position shown in Fig. 1, or it may be returned to said position by hand. The first forward movement of the lever-arm carries the envelop, which is shown at 71 in Figs. 5 and 6, inwardly until the flap 72 thereof strikes and passes downwardly in front of the plate 22. In this operation the flap 72 of the envelop first strikes the downwardly-curved portion of the shield 25 and is directed downwardly against the plate 22, as shown in Fig. 5. During the first forward movement of the lever-arm, as above described, after the flap 72 of the envelop has been turned down in front of the plate 22, the arms 19 of the shaft 18 are moved up-

wardly, throwing the moistening-pad against the gummed side of the flap, as shown in Fig. 5, this operation being accomplished by one of the lugs or projections 53 striking the lug or projection 47 on one of said arms. These lugs or projections remain in contact only long enough to force the arms 19 into the position shown in Fig. 5, the lug or projection 53 passing over the lug or projection 47 in the continued movement of the wheel 50, and the moistening-pad drops back into the position shown in Fig. 6 immediately after the envelop has been moistened, as above described, and during the same forward movement of the lever-arm one of the lugs or projections 53 comes in contact with the lower end of the arm 42, the shaft 23 is turned, the shield 24 raised into the position shown in full lines in Fig. 6, and the pins 26, which are carried by the shield 24, operate on the branch arms 29 of the arms 28 to raise the cross-plate 31, carried by the branch arms 30 of the arms 28, and this cross-plate comes in contact with the lower side of the envelop and forces it upwardly against the bottom of the shield 24, and the rollers 8 are again put in motion, and the envelop is passed between the upper edge of the plate 22, the bottom of the shield 24, and backwardly between the separate sets of rollers 9 and 10. Each forward movement of the lever-arm 56 seals an envelop and leaves said envelop between the separate pairs of rollers 9 and 10, and said envelop is discharged onto the plate 70 at the second forward movement of the lever-arm, which second forward movement also seals and passes another envelop between the separate pairs of rollers 9 and 10. The object of the last pair of rollers 10 is to more securely seal the envelop by pressing the moistened flap into contact with the back thereof. It will be apparent, however, that this operation may be performed by a single pair of rollers, such as the rollers 9.

In the operation of the machine as above described the rollers 8 are in motion until the flap 72 of the envelop is turned downwardly adjacent to the plate 22, as shown in Fig. 5. The said rollers are then stationary, while the wheel 10 is turning through one of the short spaces 52. At the end of this time one of the pins 53 operates the shield 24, as described, and the rollers 8 are again put in motion and are turned until the pinion 44 reaches one of the long spaces 52, at which time the envelop has passed between the rear sets of rollers 9 and 10, from which it is discharged at the next forward movement of the lever-arm.

It will thus be seen that I accomplish the object of my invention by means of a machine which is simple in construction and operation and perfectly adapted to produce the result for which it is intended. It will also be apparent that changes in and modifications of the construction described may be made without departing from the spirit of my in-

vention or sacrificing its advantages, and I reserve the right to make all such alterations therein as fairly come within the scope of the invention.

Having fully described my invention, I claim as new and desire to secure by Letters Patent—

1. A machine for sealing envelops, comprising a frame, a plurality of pairs of rollers mounted therein, devices for folding the flap of an envelop as it passes between said pairs of rollers, means for operating said devices, moistening devices mounted below said pairs of rollers and provided with a pivoted member adapted to moisten the flap of the envelop, and means for operating said pivoted member, substantially as shown and described.

2. A machine for sealing envelops, comprising a frame, a plurality of pairs of rollers mounted in the top thereof, a stationary plate mounted between two pairs of said rollers and projecting downwardly and backwardly, moistening devices mounted in front of and below said plate, and means for feeding an envelop through said pairs of rollers, and means for moistening the flap as it rests against said stationary plate and for folding it as it passes between said pairs of rollers, substantially as shown and described.

3. A machine for sealing envelops, comprising a frame, a plurality of pairs of rollers mounted in the top thereof, a stationary plate mounted between two of said pairs of rollers and projecting downwardly and backwardly, moistening devices below said plate and operating in connection therewith, a pivoted downwardly-curved shield mounted above said plate, a pivotally-supported cross-plate below said shield, and adapted to be operated thereby, and means for operating said rollers, said moistening devices and said shield, substantially as shown and described.

4. A machine for sealing envelops, comprising a frame, a plurality of pairs of rollers mounted in the top thereof, the rollers of each pair being in vertical planes, moistening devices mounted between two pairs of said rollers and below the same, a stationary plate mounted above said moistening devices, and in connection with which said devices operate, and means for feeding an envelop between said pairs of rollers and turning the flap downwardly over said plate, and for operating said moistening devices, and folding the flap of said envelop, substantially as shown and described.

5. A machine for sealing envelops, comprising a frame, a plurality of pairs of rollers mounted in the top thereof, the rollers of each pair being in different vertical planes, a stationary plate mounted between two pairs of said rollers and projecting downwardly, moistening devices below said plate operating in connection therewith, and devices for folding the flap of the envelop as it passes between said pairs of rollers, and a single hand-lever

by which said rollers and said devices for folding the flap of the envelop are all operated, substantially as shown and described.

6. A machine for sealing envelops, comprising a frame, a plurality of pairs of rollers mounted in the top thereof, a pivoted shield mounted between said rollers, a pivotally-supported cross-plate mounted below said shield and adapted to be operated thereby, a stationary plate mounted between said pairs of rollers and projecting downwardly, moistening devices mounted below and in front of said stationary plate, and means for operating said moistening devices, said rollers and said shield, substantially as shown and described.

7. A machine for sealing envelops, comprising a frame, a plurality of pairs of rollers mounted in the top thereof, a pivoted shield mounted between said rollers, a pivotally-supported cross-plate mounted below said shield and adapted to be operated thereby, a stationary plate mounted between said pairs of rollers and projecting downwardly, moistening devices mounted below and in front of said stationary plate, and means for operating said moistening devices, said rollers and said shield, and for giving the first pair of rollers an intermittent motion, substantially as shown and described.

8. A machine for sealing envelops, comprising a frame provided with a plurality of pairs of rollers, mounted in the top thereof, and in different vertical planes, devices for folding the flap of an envelop and for moistening the same as it passes between said rollers and devices for operating each of said pairs of rollers, comprising a double-gear wheel and a pinion on one of each pair of rollers in connection with which said double gear operates, said double-gear wheel being provided with two sets of teeth, one of which is of continuous formation and the other of which is partially cut away, whereby one of said pinions is given a continuous and the other an intermittent motion, and means for operating said gear-wheel, and the folding and moistening devices, substantially as shown and described.

9. A machine for sealing envelops, comprising a frame, a plurality of vertically-arranged pairs of rollers mounted in the top thereof, a shaft mounted between said rollers and provided with a downwardly, forwardly and upwardly curved shield, a pivotally-supported cross-plate mounted below said shield and adapted to be raised thereby, a stationary plate mounted below said shield and projecting downwardly, a shaft mounted below said stationary plate and provided with a moistening-pad which operates in connection with said plate, and means for moistening said pad, and for operating said rollers, said shield and the pad-shaft, substantially as shown and described.

10. A machine for sealing envelops, comprising a frame, a plurality of vertically-arranged pairs of rollers mounted in the top

thereof, a shaft mounted between said rollers and provided with a downwardly, forwardly and upwardly curved shield, a pivotally-supported cross-plate mounted below said shield and adapted to be raised thereby, a stationary plate mounted below said shield and projecting downwardly, a shaft mounted below said stationary plate and provided with a moistening-pad which operates in connection therewith, and means for moistening said pad, and for operating said rollers, said shield and the pad-shaft, comprising a double-gear wheel mounted adjacent to one end of said rollers and pinions with which two of said pairs of rollers are provided, said pinions operating in connection with said double-gear wheel, said gear-wheel being provided with two sets of teeth, one of which is cut away partially and one of said pinions being provided with a set of teeth partially cut away so as to give said last-named pinion an intermittent motion, substantially as shown and described.

11. A machine for sealing envelops provided with a plurality of pairs of rollers, and devices mounted between said pairs of rollers for folding the flap of the envelop and for moistening the same, a double-gear wheel mounted adjacent to the ends of said rollers and adapted to operate in connection with pinions with which the adjacent ends of one of the rollers of each pair is provided, said double-gear wheel being provided with two sets of teeth, one of which is continuous and adapted to give one of said pinions a continuous and the other of which is partially cut away and adapted to give the other pinion an intermittent motion, devices connected with said gear-wheel for operating the moistening devices and the devices for folding the flap of the envelop, and a pivotally-supported lever-arm and devices connected therewith for operating said gear-wheel, substantially as shown and described.

12. A machine for sealing envelops, comprising a frame, a plurality of pairs of rollers mounted vertically therein, devices for moistening the flap of the envelop and folding the same as it passes between said pairs of rollers, the bottom rollers of each pair being provided with a pinion, a double-gear wheel mounted adjacent to said pinions and operating in connection with each and provided with two sets of teeth, one of which is continuous and the other partially cut away and respectively adapted to give one a continuous and the other an intermittent motion, devices connected with said gear-wheel for operating the moistening and flap-folding devices, and means for turning said gear-wheel in one direction, substantially as shown and described.

13. A machine for sealing envelops, comprising a frame, a plurality of pairs of rollers mounted vertically therein, devices for moistening the flap of the envelop and folding the same as it passes between said pairs of rollers, the bottom rollers of each pair being provided with a pinion, a double-gear wheel

mounted adjacent to said pinions and operating in connection with each and provided with two sets of teeth, one of which is continuous and the other partially cut away and
5 respectively adapted to give one a continuous and the other an intermittent motion, devices connected with said gear-wheel for operating the moistening and flap-folding devices, and means for turning said gear-wheel in one direction,
10 consisting of a lever-arm pivoted below said gear-wheel, an arm connected with the shaft of said gear-wheel and provided with a pin passing through a slot formed in

said lever-arm, a ratchet connected with the shaft of said gear-wheel, and a pawl connected
15 with said arm and operating in connection therewith, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 22d
20 day of December, 1898.

LAURITS M. NIELSEN.

Witnesses:

F. A. STEWART,
V. M. VOSLER.