H. W. REIFENSTEIN & C. J. FOX.

MAIL PACKETING MACHINE.

APPLICATION FILED APR. 30, 1908.

911,763.

Patented Feb. 9, 1909.

2 SHEETS—SHEET 1.

Fig. 1.

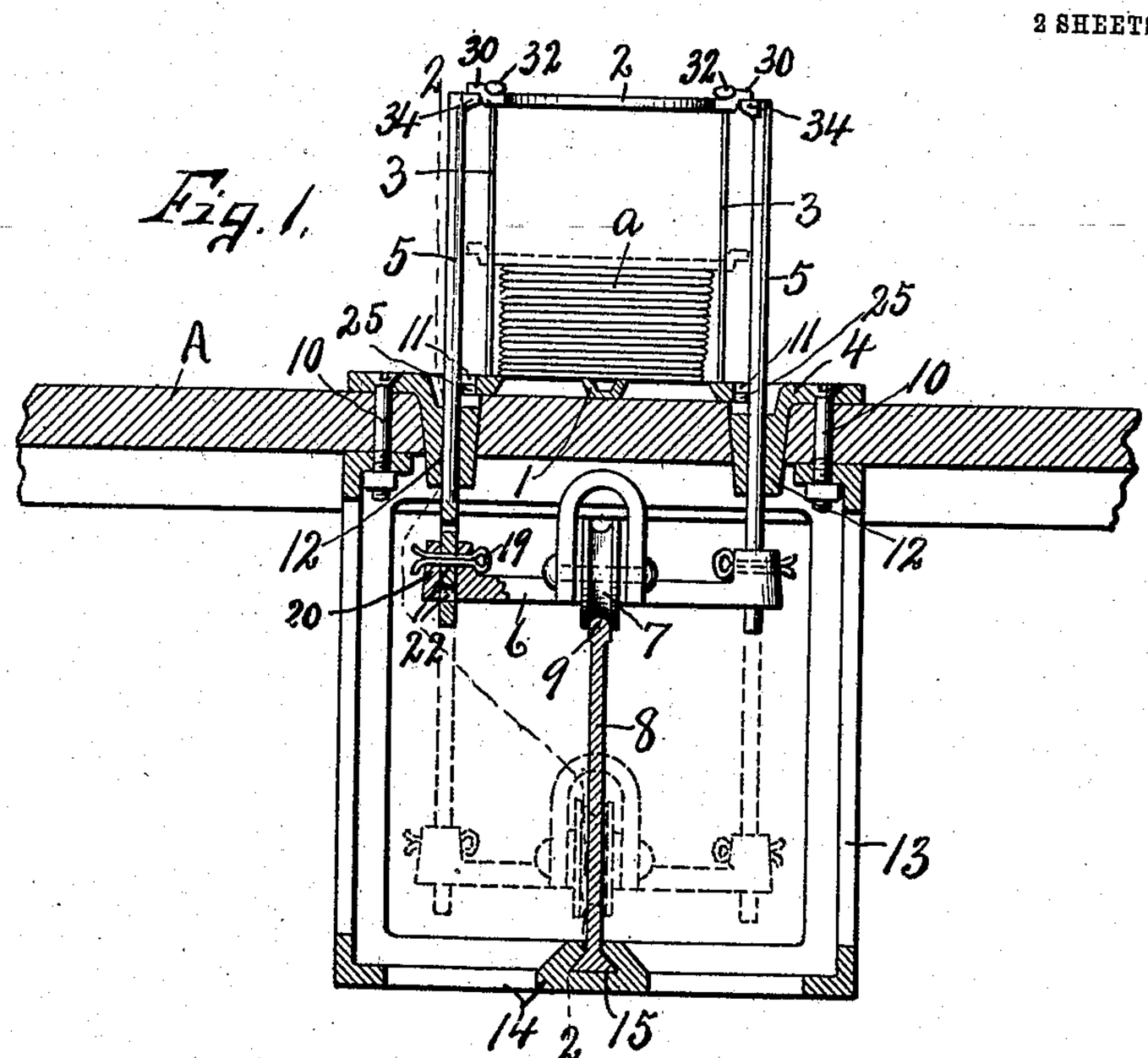
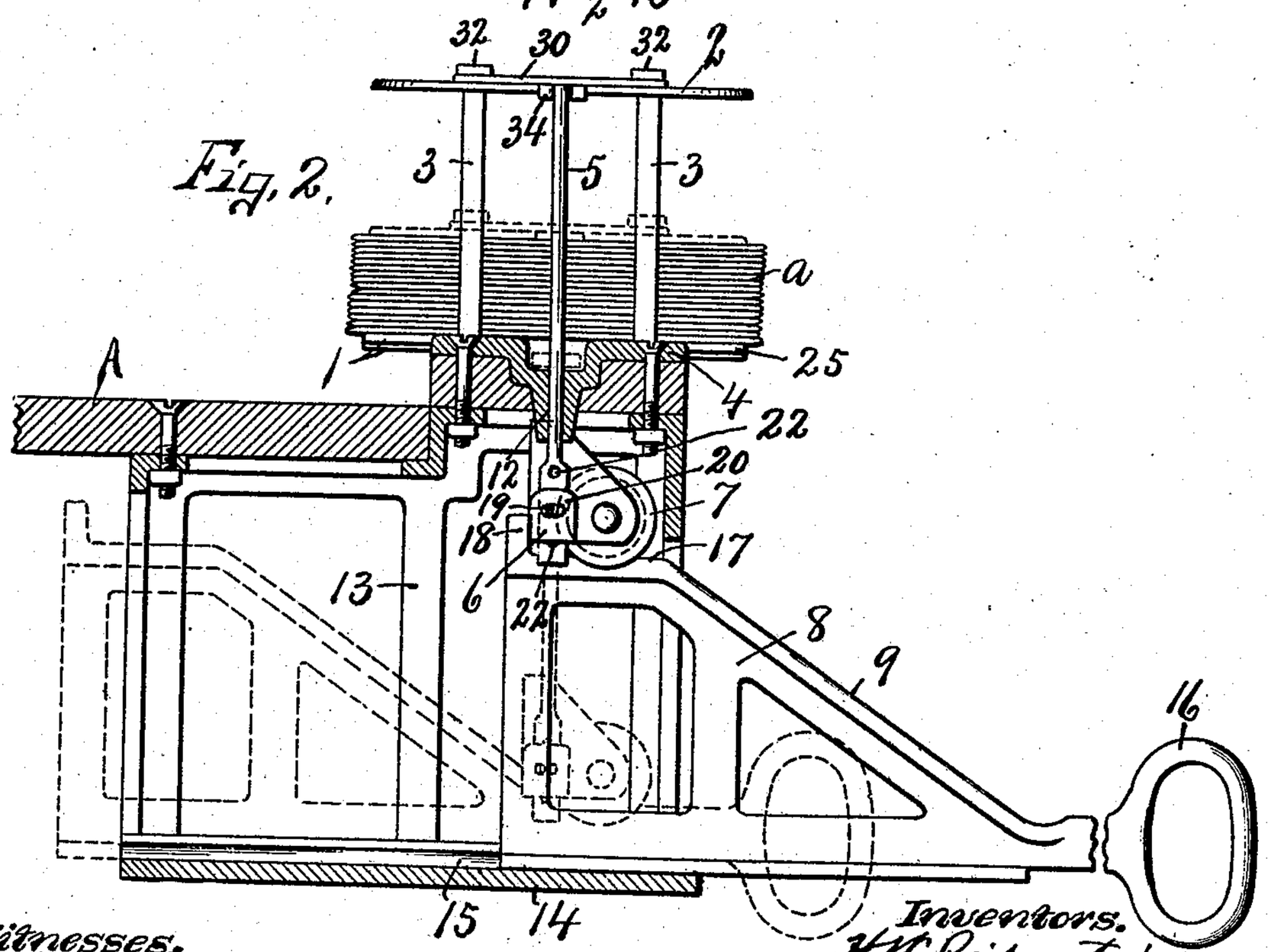


Fig. 2.



Witnesses.
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2 SHEETS—SHEET 2.

Fig. 3.

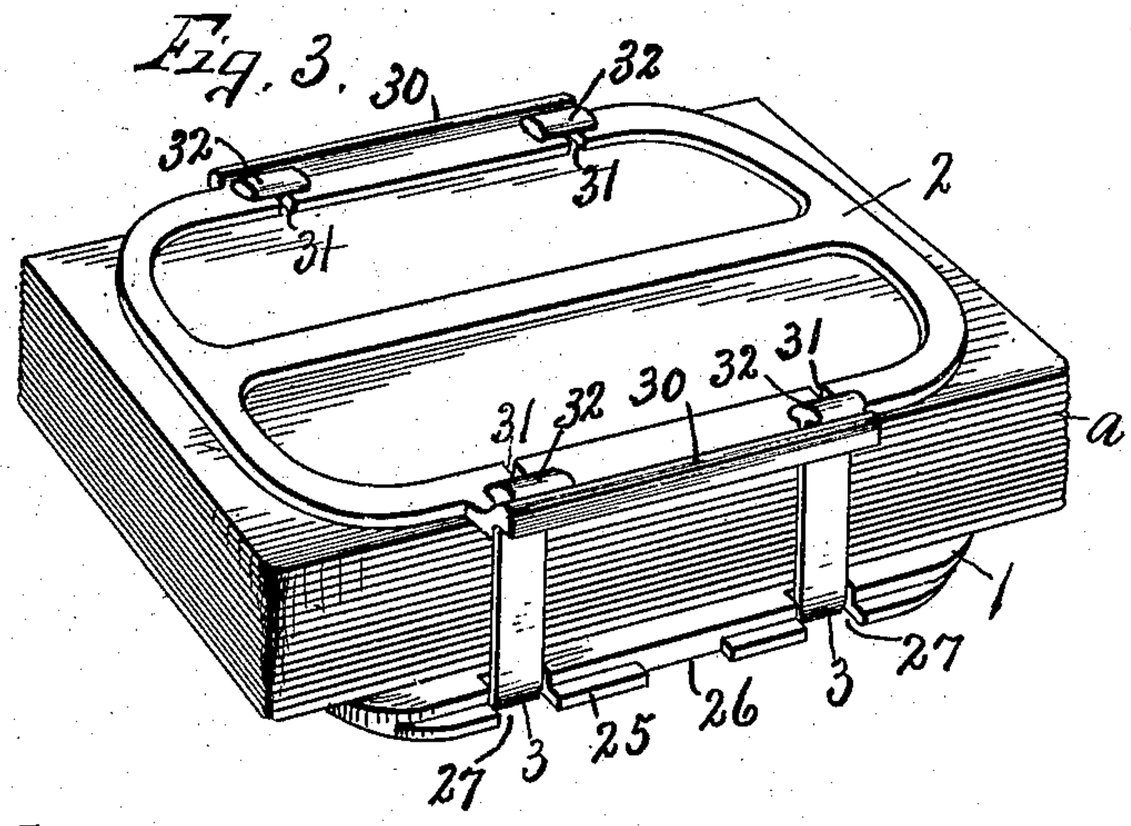


Fig. 6.

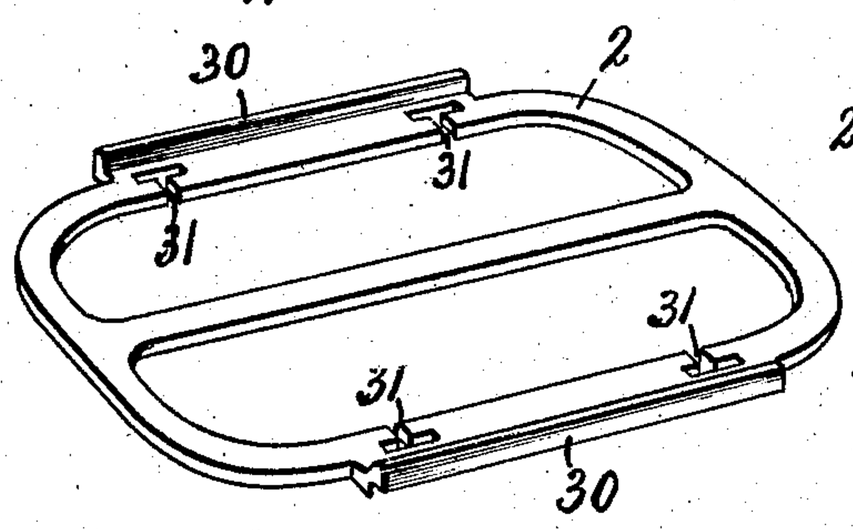


Fig. 4.

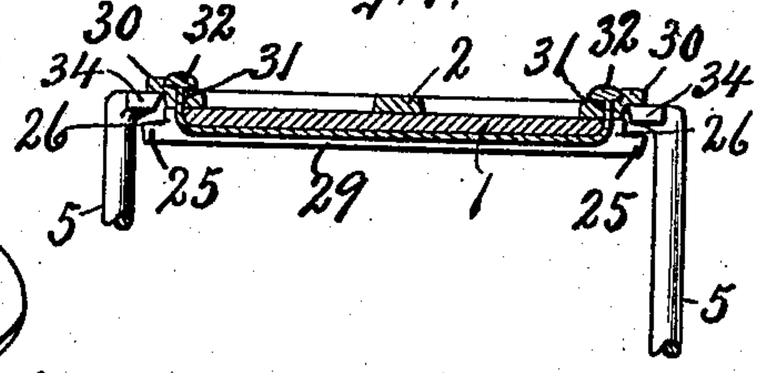


Fig. 5.

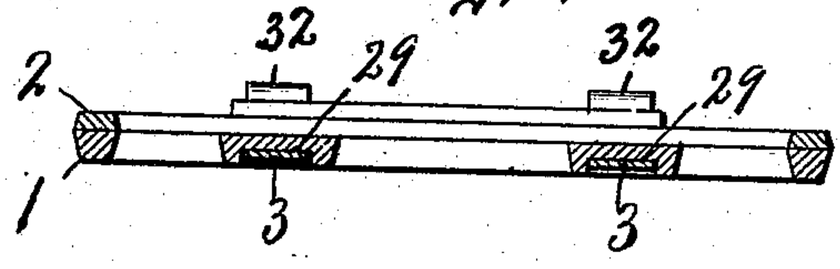
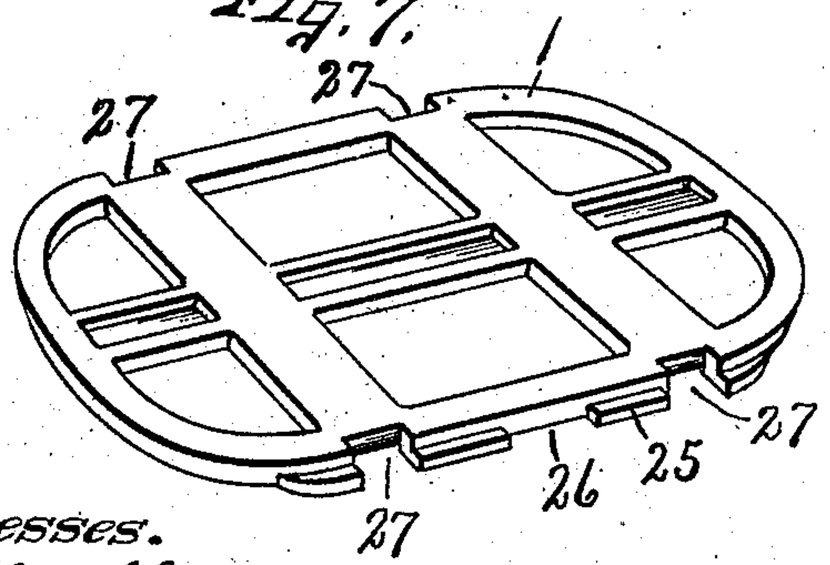


Fig. 7.



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UNITED STATES PATENT OFFICE.

HENRY W. REIFENSTEIN AND CHARLES J. FOX, OF SYRACUSE, NEW YORK.

MAIL-PACKETING MACHINE.

No. 911,763. Specification of Letters Patent. Patented Feb. 9, 1909.

Application filed April 30, 1908. Serial No. 430,221.

To all whom it may concern:

Be it known that we, HENRY W. REIFENSTEIN and CHARLES J. FOX, of Syracuse, in the county of Onondaga, in the State of New York, have invented new and useful Improvements in Mail-Packeting Machines, of which the following, taken in connection with the accompanying drawings, is a full, clear, and exact description.

This invention relates to certain improvements in mail packeting machines for use in mail cars, post offices, and other places where it is necessary to select and bind together letters and other mail destined for specific localities or stations. At the present time, it is customary for the mail clerks to bind these letters together in bundles or packets by suitable binding twine which although done as expeditiously as possible, nevertheless consumes considerable valuable time and a large amount of twine which is invariably wasted by reason of the fact that when the packet reaches its destination, the twine is cut and thrown away thereby entailing a considerable expense in the handling of mail.

Our main object is to provide a simple practical and efficient machine or device involving the use of separable self-closing clamps between which the bundle of letters are held and which may be continuously reused thereby avoiding the use and consequent waste and expense of twine. In other words, we have sought to produce a letter packeting device by which the letters and other mail may be more expeditiously secured in packages or bundles than by the use of twine, thereby enabling a less number of clerks to perform the same amount of work that is required by the present force, and in less time.

Other objects and uses relating to specific parts of our invention will be brought out in the following description.

In the drawings, Figures 1 and 2 are respectively transverse and longitudinal vertical sectional views of a letter packeting machine embodying the various features of our invention showing the clamps as separated to their maximum degree for the reception of a bundle or package of letters indicated in full lines, the upper clamp and its operating means being shown by dotted lines in position for retracting said upper clamp against the upper face of the package. Fig. 3 is a perspective view of the detached plates and clamping means therefor with a bundle of letters clamped between them. Figs. 4 and 5 are respectively transverse and longitudinal sectional views of the clamps and retracting means shown in their closed position showing also the upper portions of the plunger rods by which the upper clamp is elevated against said retracting means. Figs. 6 and 7 are perspective views respectively of the upper and lower clamps.

These machines are adapted to be installed side by side suitable distances apart upon any suitable support as a table or desk —A— and each comprises essentially a pair of separable clamping plates —1— and —2— adapted to be drawn together by one or more elastic retracting bands or straps —3—, the lower plate —1— being detachably interlocked with a fixed guide plate —4— while the upper plate —2— is adapted to be raised and lowered by reciprocating plungers —5— connected together at their lower end by a cross head —6— having a roller bearing —7— which is engaged by a reciprocating plunger —8— having an inclined bearing face —9— riding against the under side of said roller. The guide plate —4— is securely fastened by clamping bolts —10— to the upper side of the table top or supporting bed —A— and is provided with undercut horizontal lengthwise guides —11— and vertical guides —12— the latter being located at the outside of the lengthwise guides —11—.

A pendent supporting frame —13— is secured by the bolts —10— to the under side of the table top or bed —1— and is provided at its lower side with a cross bar —14— having an under cut guide or way —15— for the reception of a similarly formed base on the plunger —8—. This plunger —8— is located substantially midway between the opposite sides of the frame —13— and substantially midway between the plungers —5— and is movable horizontally back and forth in the guide —15— beneath the table top —1—, said bearing being provided with a suitable operating hand —16— projecting forwardly

in the front of the table —1— while the incline —9— extends upwardly and rearwardly from the handle —16— and terminates in a horizontal bearing —17— upon which the roller —7— may rest to hold the plungers —5— and upper plate —2— in their extreme upward positions when the plunger —8— is drawn to its extreme forward position, the rear end of the horizontal bearing face terminating in a stop —18— adapted to engage the rear end of the roller bearing —7— to limit the forward movement of the plunger —8—.

The roller bearing —7— is centrally journaled in the yoke —6— midway between the lower ends of the plunger —5— and beneath the table top —1— and serves as an anti friction bearing to ride upon the incline —9— as the latter is drawn forwardly to elevate the plungers —5— and upper clamping plate —2— engaged thereby.

The plungers —5— are disposed in an upright or vertical position and are movable vertically in the bearings —12—, the lower ends of said plunger rods —5— being secured by suitable keys or cotter pins —19— in bearings —20— on the opposite ends of the yoke or cross head —6—. These plunger rods —5— are made adjustable in the bearings —20— to permit a variation in the elevation of the upper clamping plate —2— relative to the lower clamping plate —1— and for this purpose are each provided with a series of apertures —22— one above the other, either of which is adapted to receive the locking pins —19—.

It is apparent from the foregoing description that the lower ends of the plungers —5— where they are connected to the cross head —6— below the table top are adjustable on said cross-head while the upper ends are movable through and some distance above the bearings —12— and also above the table top —1— and plate —4— and are spaced a sufficient distance apart to permit the free play of the movable clamp —2— and mail matter which may be placed between the clamps.

The clamping plate —1— is slidably interlocked with the undercut ribs or ways —11— of the plate —4— and for this purpose its opposite longitudinal edges are provided with lengthwise flanges —25— which ride in the grooves formed by the undercut guides —11—, said plate preferably consisting of an open frame of slightly greater width but of less length than ordinary letters.

The central portions of the opposite longitudinal edges of the plate —1— are provided with central recesses —26— preferably formed by cutting away portions of the flanges —25— and are also formed with additional recesses —27— located at opposite sides of and equi-distant from the recesses —26— for the reception of elastic bands or straps —3— of rubber or its equivalent, the lower portions of which are let into transverse grooves —29— in the under side of the plate —1— in alinement with the recesses —27— so as to prevent friction between the band —3— and underlying portion of the plate —4— when the clamping plate —1— is being inserted into and removed from the guides —11—.

The upper clamping plate —2— which is of substantially the same form and dimensions as the lower plate —1— is provided with opposite lengthwise ribs or flanges —30— and the inner sides of said plate adjacent to the flanges —30— are formed with T-shaped slots —31— opening from the inner edges thereof for the reception of the ends of the elastic bands —3—, which latter are provided with enlarged heads —32— which are of greater area than the elongated portions or bases of the slots —31— in which the adjacent ends of the bands are inserted to rest against the top face of the plate and prevent withdrawal of the ends of the bands therefrom. These bands —28— are tensioned to normally draw the plates together as shown in Figs. 4 and 5 when no mail matter is present between them. The lengthwise flanges —30— on the opposite edges of the plates —2— overlie the recesses —26— and —27—.

The upper ends of the plungers —5— are provided with inwardly projecting shoulders —34— which normally lie in the recesses —26— directly beneath the overhanging flanges —30— of the upper clamping plate —2— when the plungers are in their extreme down position so that when the plungers are elevated by the forward movement of the incline —9— against the roller —7—, the shoulder —34— will engage the under sides of the overlying flanges of the plate —2— and thereby elevate said plate against the action of the elastic bands —3— a sufficient distance to permit a bundle of letters as —*a*— to be placed between the opposite forwardly extending ends of the bands —3— and upon the lower clamping plate —1— whereupon the plunger —8— is moved by hand rearwardly allowing the roller —7— to ride down the incline —9— and thereby permitting the cross head —6— with the plungers —5— and upper clamping plate —2— to be drawn downwardly by the retracting action of the bands —3— until the upper clamping plate —2— encounters the upper side of the package or bundle of letters —*a*— whereupon the bundle of letters are firmly bound together between the clamps —1— and —2— by the elastic bands —3—, the cross head —6— and plunger —5— continuing their downward movement by gravity as the plunger —8— is forced to its extreme rearward position. The horizontal distance between the extreme lower and

upper edges of the incline —9— of the plunger —8— is sufficient to separate or elevate the upper clamping plate —2— from the lower plate —1— for the reception of the maximum number of letters or other mail matter which might be desired to bind in one bundle or package, although it is evident that the degree of movement of the upper clamping plate —2— may be varied by varying the incline of the plunger.

It is apparent from the foregoing description that the upper ends of the plungers as the shoulder —34— simply engage and elevate the clamping plate —2— as the plunger —8— is drawn forwardly but are free to continue their movement independently of said plate when the latter is brought into engagement with the upper side of the bundle of letters upon the extreme rearward movement of the plunger —8— whereupon the clamps with the letters firmly held between them may be readily withdrawn from the support —4— and laid aside and the operation repeated for forming another package of letters with another set of clamps. When these clamps reach their destined station for distribution they may be placed in a similar machine and separated in the manner described to permit the letters to be withdrawn after which they are allowed to be drawn together by their elastic bands upon the release of the plungers —5— by the rearward movement of the plunger —8—, said clamping plates being then ready for reuse in forming another package.

The operation briefly described is as follows: The mail clerk first selects and bunches the mail matter destined for a certain station together and then slides or inserts the lower clamping plate —1— into the guide —11— on the plate —4— which holds it against vertical movement, care being taken to bring the recess —26— of the plate —1— into registration with the upper ends —34— of the plungers —5—, it being understood that the upper clamping plate —1— is held against the lower plate —2— by the retracting bands —3— as seen in Figs. 4 and 5. Now by drawing the plunger —8— forwardly by means of the hand piece —16— until the roller —7— rests upon the horizontal bearing —17—, the plungers —5— will be elevated and brought into engagement with the flanges —30— thereby raising and holding the clamping plate —2— in its extreme upward position as shown in Figs. 1 and 2 against the action of the retracting bands —3— leaving sufficient clearance between the opposite sides of the bands and also between the plates for the reception of the bundle of letters whereupon the plunger —8— is forced rearwardly allowing the retracting bands —3— to draw the upper clamping plate —2— downward against the upper side of the bundle of letters —2—, said bands also serving to force the plungers —5— and parts connected thereto downwardly until the plate —2— is brought into engagement with the package of letters after which the plungers —5— and said parts descend by gravity to their extreme downward limit of movement. The clamping plates —1— and —2— with the package of letters firmly held between them may now be withdrawn from the guides —11— of the plate —4— and laid aside for transmission to its destination whereupon another set of clamping plates may be inserted in the machine and the operation repeated to form another package of letters.

It will be observed that the top clamping plate —2— is provided with opposite lengthwise openings divided by a cross bar to permit visual inspection of the address and denomination of the stamp when the letters are held between the clamps.

What we claim is:

1. In a mail packeting machine, a pair of separable clamps and yielding connections between them and holding means for one of the clamps.

2. In a mail packeting machine, a pair of separable clamping plates, a fixed guide in which one of the clamps is slidable and elastic means for drawing said plates toward each other.

3. In a mail packeting machine, a pair of separable clamps, elastic means for drawing said clamps toward each other, means for holding one of the clamps, and movable means for engaging and separating the clamps against the action of said elastic means.

4. In a mail packeting machine, a guide, separable clamping plates one of which is movable into and out of said guide, yielding means connecting said plates, and means for moving the other plate away from the one in the guide.

5. In a mail packeting machine, a pair of separable clamps, and elastic means for drawing them toward each other, holding means for one of the clamps, and means for moving and holding the other clamp against the action of said elastic means.

6. In a mail packeting machine, a pair of separable clamps, holding means for one of the clamps, means for separating the other clamp therefrom, and retracting means for the movable clamp.

7. In a mail packeting machine, a fixed guide, a clamp slidably interlocked with said guide and removable therefrom, a second clamp movable to and from the first named clamp, elastic connections between the clamps, a movable incline, and means actuated by the movement of said incline for moving the second clamp from the first named clamp against the action of said elastic connection.

8. In a mail packeting machine, a pair of separable clamps and elastic connections between them, in combination with holding means for one of the clamps, reciprocating means for actuating the other clamp against the action of said elastic means, and means for actuating said reciprocating means.

In witness whereof we have hereunto set our hands this 27th day of April 1908.

HENRY W. REIFENSTEIN.
CHARLES J. FOX.

Witnesses:
H. E. CHASE,
C. M. MCCORMACK.