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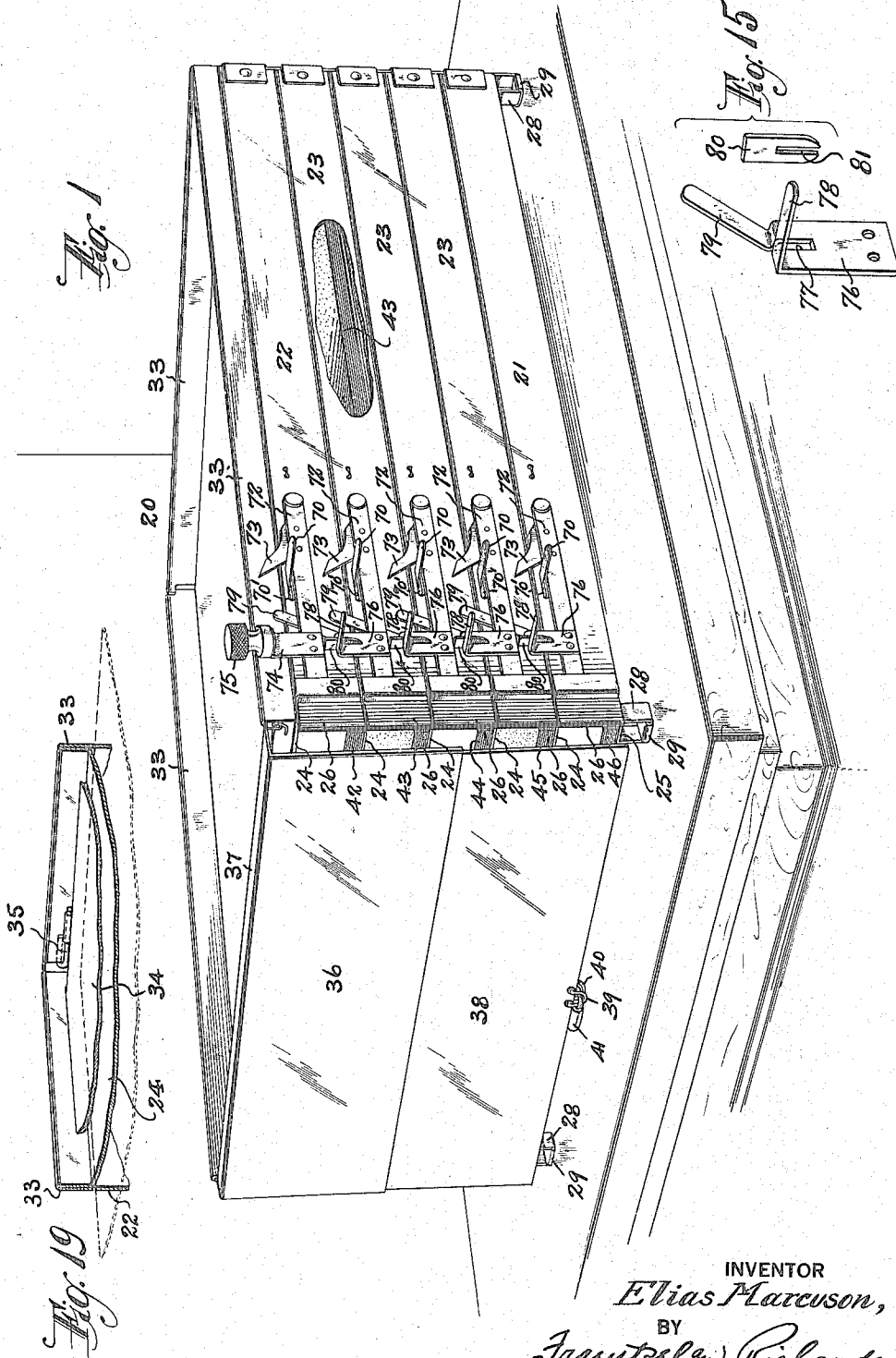
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E. MARCUSON

PAPER FEEDING AND COLLATING DEVICE

Filed March 17, 1922

5 Sheets-Sheet 1



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Aug. 12, 1924.

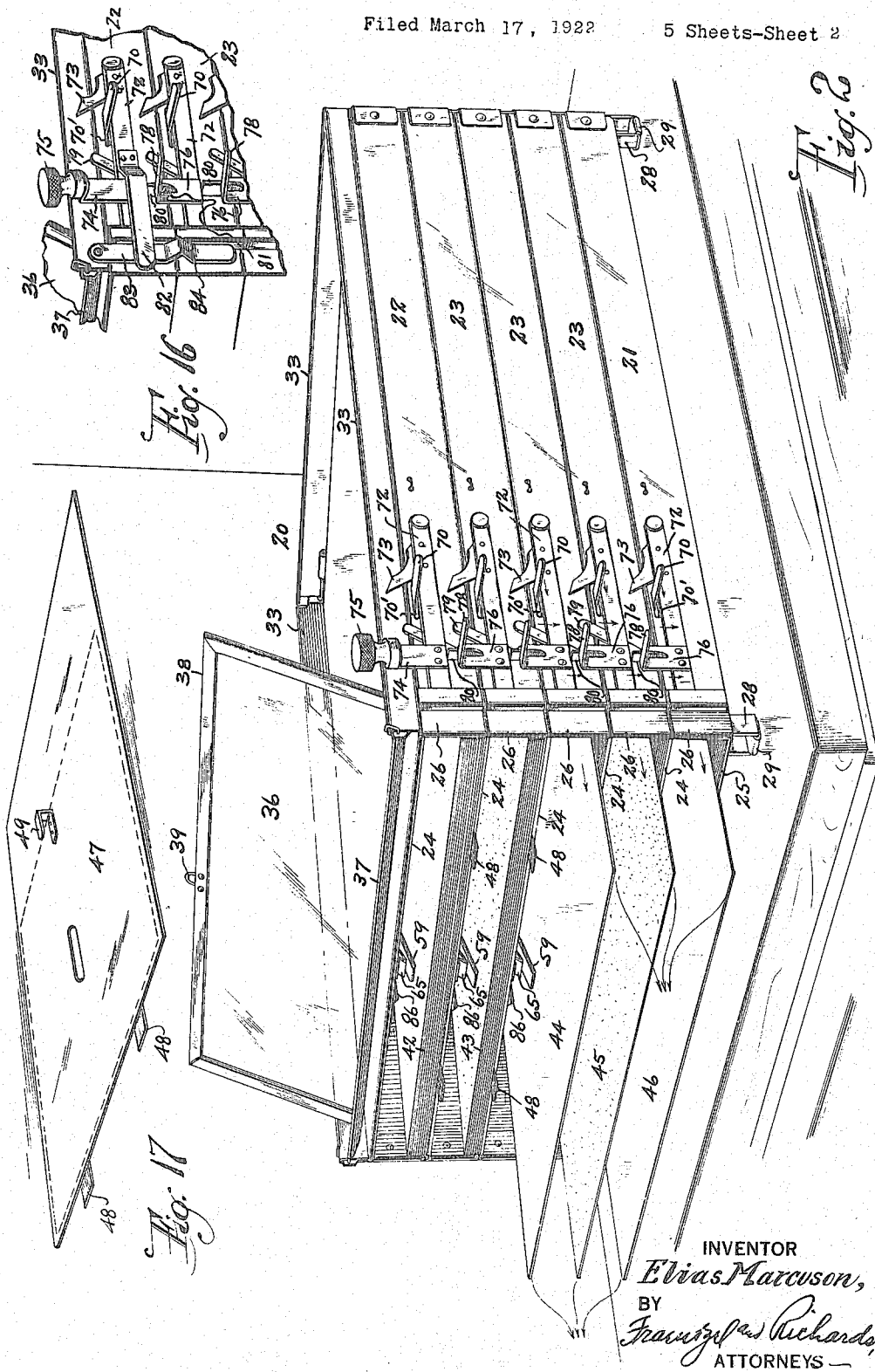
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5 Sheets-Sheet 2



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5 Sheets-Sheet 3

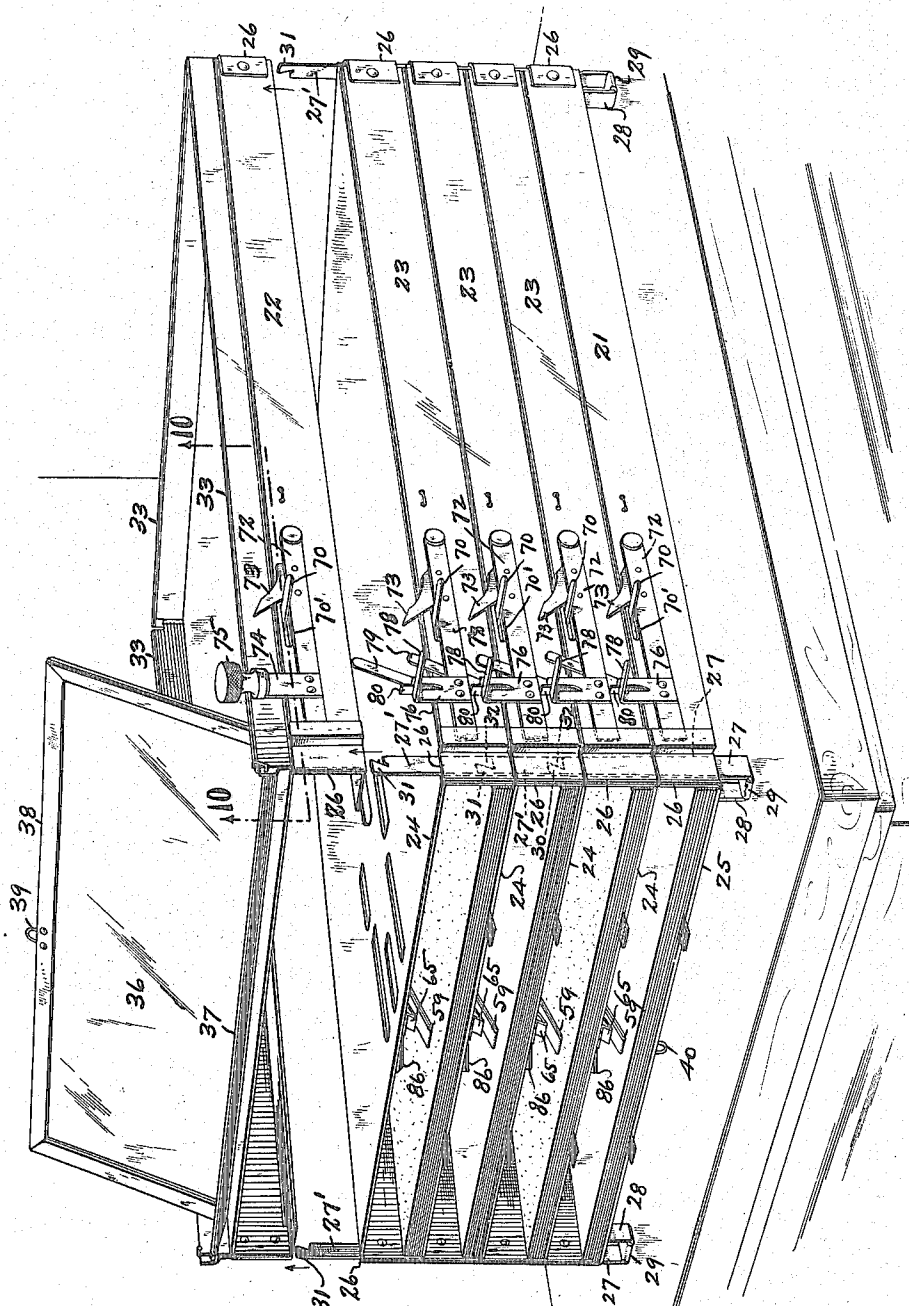


Fig. 3

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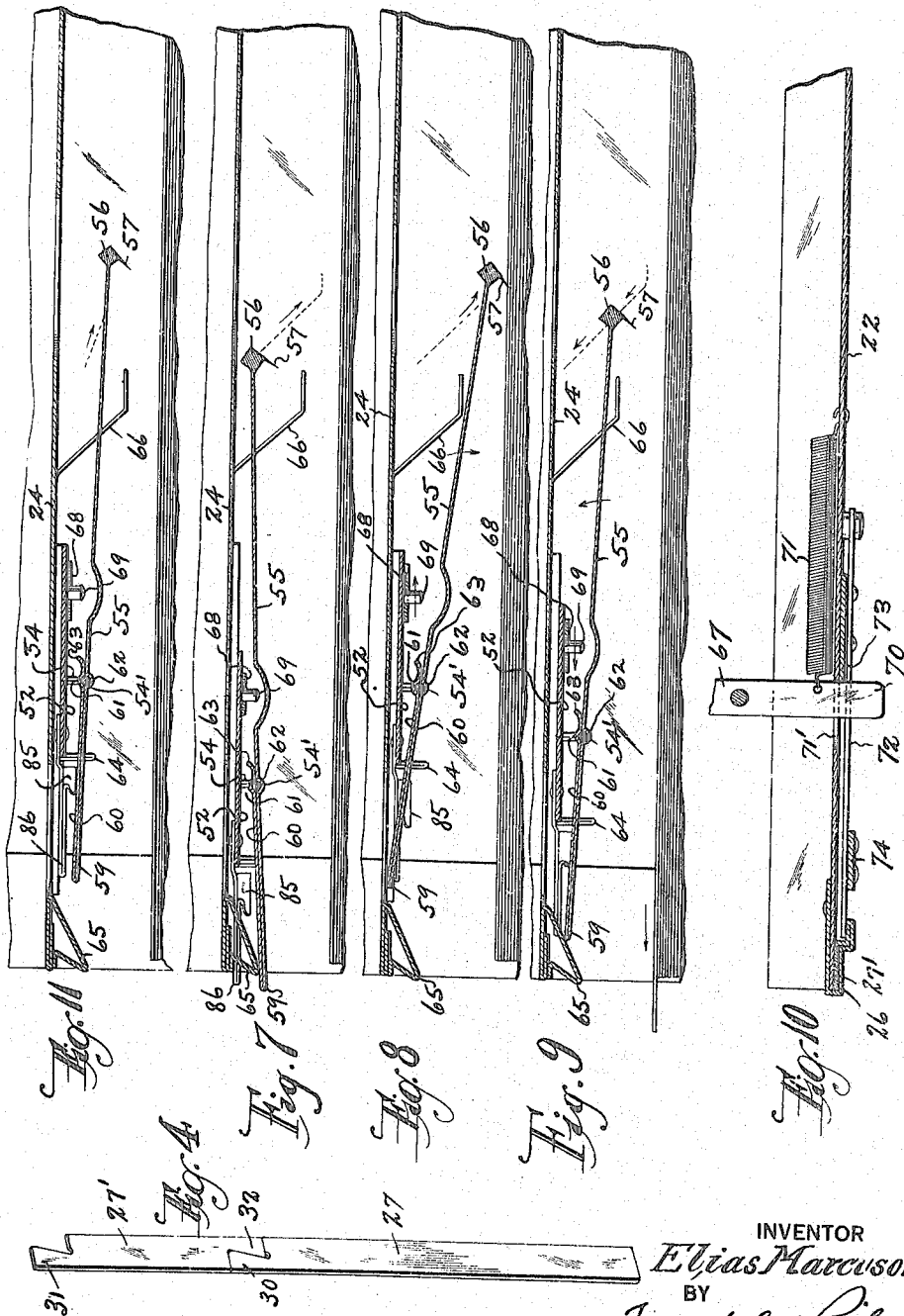
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5 Sheets-Sheet 4



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Aug. 12, 1924.

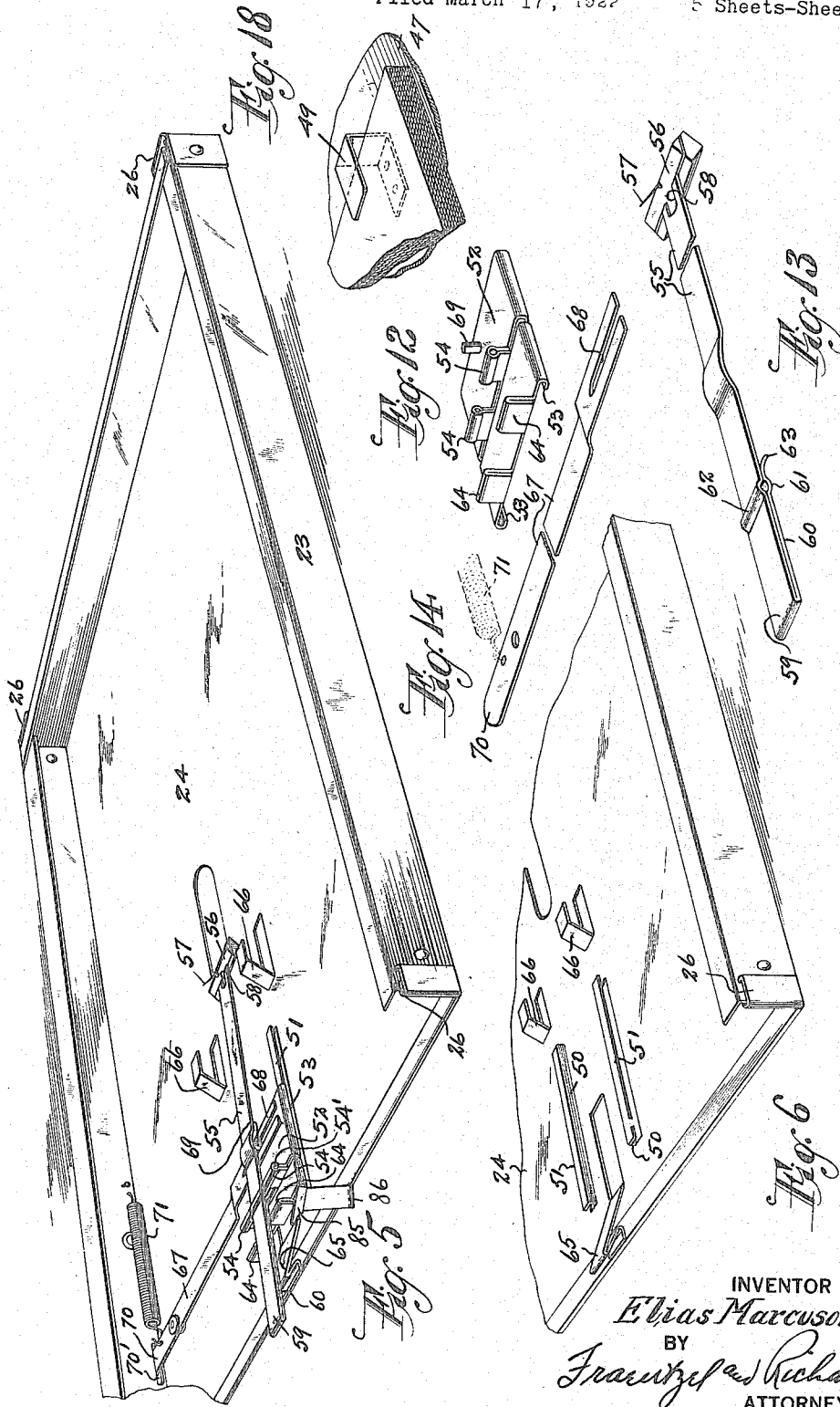
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Filed March 17, 1922

5 Sheets-Sheet 5



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UNITED STATES PATENT OFFICE.

ELIAS MARCUSON, OF NEW YORK, N. Y.

PAPER FEEDING AND COLLATING DEVICE.

Application filed March 17, 1922. Serial No. 544,577.

To all whom it may concern:

Be it known that I, ELIAS MARCUSON, a British subject, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Paper Feeding and Collating Devices; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to characters of reference marked thereon, which form a part of this specification.

This invention relates, generally, to improvements in paper feeding and collating devices of the general character shown and described in my prior United States Letters Patent #1,370,660, dated March 8th, 1921.

The present invention has for its principal object to provide a novel arrangement of separable sheet holders or sectional compartments adapted to be assembled together to form a complete feeding or collating device containing the required number of sections or compartments whereby a desired number of sheets may be ejected and collated; each compartment having an improved construction of ejecting means, together with novel means for simultaneously actuating the ejecting means of all compartments, or selectively actuating the ejecting means of a desired number of compartments less than the whole number thereof.

Another object of this invention is to provide detailed structural improvements in the sheet holders or compartments and the ejecting mechanism thereof.

Another object of this invention is to provide a novel combined lockable closure and copy rest for the collating and feeding device.

Other objects of this invention, not at this time more particularly enumerated, will be clearly understood from the following detailed description of the same.

The invention is clearly illustrated in the accompanying drawings, in which:—

Figure 1 is a perspective view of the novel construction of sheet feeding and collating device, made according to and embodying the principles of this invention; the novel lockable closure being shown locked in

closed relation to open ends of the sections or compartments of the device.

Figure 2 is a perspective view of the device, with the closure in open position and converted to provide a copy rest, and the feeding and collating devices disposed for operation.

Figure 3 is a perspective view similar to that shown in Figure 2, but illustrating a sheet holder or sectional compartment separated from its fellows to show the means for holding the same in assembled relation one with another.

Figure 4 is a perspective view of a coupling means for connecting the separable sectional compartments one with another.

Figure 5 is a perspective view of a single compartment detached from its fellows and turned up side down to show the ejecting mechanism thereof.

Figure 6 is a fragmentary perspective view similar to Figure 5, with the ejecting mechanism removed.

Figures 7, 8 and 9 are respectively fragmentary longitudinal central sections illustrating various stages in the operation of the ejecting mechanism.

Figure 10 is a fragmentary horizontal section, taken on line 10—10 in Figure 3, illustrating the operative connections between the ejecting mechanism and the actuating means therefor.

Figure 11 is a fragmentary longitudinal central section, illustrating the operation of means for holding an ejecting mechanism out of service or inoperative.

Figure 12 is a perspective view of the slide carriage of an ejecting mechanism.

Figure 13 is a perspective view of an ejector bar.

Figure 14 is a perspective view of a transmission lever for reciprocating a slide carriage of an ejector mechanism.

Figure 15 is a perspective view of coupling means interposed between the actuating means for the several ejector mechanisms.

Figure 16 is a perspective view of a modified construction of actuating mechanism.

Figure 17 is a perspective view of a sheet tray provided with a stop for short or half length sheets; and Figure 18 is an enlarged perspective view of said stop device.

Figure 19 is a fragmentary perspective view of a top section or tray, showing the means for pivotally attaching a guard or

keeper member for covering and protecting used carbons deposited on said top section or tray.

Similar characters of reference are employed in all of the hereinabove described views to indicate corresponding parts.

Referring now to said drawings, the reference character 20 indicates a complete casing made up of a plurality of separable units or sections interconnected together one above another. Said separable units or sections comprise a bottom or base section 21, a top section 22 and intermediate sections 23. All of the sections are provided with open forward ends, and top walls 24. With the exception of the bottom or base section 21, the remaining sections are open at their bottom or under sides, so that when assembled together the top wall of one section will form or provide the bottom wall of the next section above, thus effecting a saving in material and labor in manufacturing the device. The said bottom or base section 21 is provided with a bottom wall 25. The several sections 21, 22 and 23 are each provided at their corner portions with exteriorly disposed vertical socket members 26, which are open endwise, so that when said sections are assembled together, the sockets of corresponding corner portions will aline themselves vertically one with another. The means for securing said separable sections together in operative assembled relation, comprise, main coupling bars 27, which are inserted through the alined sockets of the three lower sections at their respective corner portions, and auxiliary coupling bars 27'. The lower ends of said main coupling bars may be bent or doubled upon themselves to provide foot pieces 28, arranged to project downwardly from the bottom or base section, having connected therewith, at their bases, a covering 29 of soft or non-abrasive material, which will protect a desk or other surface upon which the device is placed against being scratched or marred by the device. The upper ends of said coupling bars 27 are provided with upwardly extending coupling tongues 30 which are alined with the right hand longitudinal edge of each coupling bar, and which are provided with an undercut or oblique inner edge, preferably as shown in Figures 3 and 4. Said auxiliary coupling bars 27' are of a length suitable to interconnect adjoining sections or units, and the same are provided at their upper ends with upwardly extending coupling tongues 31, which are also alined with the right hand longitudinal edge of each coupling bar 27', and which are also provided with an undercut or oblique inner edge as shown, while at their lower ends are provided downwardly extending coupling tongues 32, which are alined with the left hand longitudinal edge of each coupling

bar 27', and which are provided with undercut or oblique inner edges as shown. In assembling the above described coupling bars with the sections or units of the casing, the coupling bars 27 are inserted upwardly through the respective socket members 26 of the bottom section 21, and then an intermediate section 23 is arranged to engage its socket members 26 over the coupling bars 27, and is then pushed down into place upon said bottom section 21. Auxiliary coupling bars 27' are then inserted in the socket members 26 of the next section or unit of the casing so that their lower ends project downwardly and outwardly therefrom. The coupling tongues 32 of said auxiliary coupling bars 27', thus arranged, are thereupon alined with and interlocked with the coupling tongues 30 of the coupling bars 27, and the said next section or unit of the casing is thereupon pushed down into place upon the section or unit below, so that the interlocked coupling tongues 32 and 30 are entered in the socket members 26, to be thereby retained against lateral separation, while the bars 27 and 27' are retained against longitudinal separation by the dove-tailed or interlocked opposed undercut or oblique inner edges of said respective coupling tongues. In a similar manner additional intermediate sections or units of the casing together with a top section 22, may be assembled with additional coupling bars 27', the coupling tongues 31 and 32 of adjoining coupling bars 27' being interlocked and embraced by the socket members 26 in a similar manner, all as illustrated more particularly in Figure 3. From the above, it will be understood, that the casing may be composed of any desired number of units or sections, within reasonable limits, according to the number of sheets and intermediate carbons it is desired to collate. The top section 22 is provided at its longitudinal and rear side edges with an upstanding flange 33, thus providing an open receiving compartment or receptacle for used carbon sheets. In order to prevent dislodgement, by air currents or draughts, of the used carbon sheets which may be deposited within said receiving compartment or receptacle, the same may be provided with a protector leaf or cover sheet 34 which is suitably connected by a hinge connection 35 at the rear end of the receptacle, so that the same may be swung upwardly to permit the deposit or removal of carbon sheets.

Connected pivotally with the top section 22 in a suitable manner is a combined lockable closure and copy rest, the same comprising a main body 36 having a horizontal flange 37 at its pivoted end. Telescopically or slidably associated with the free end of said main body 36 is an extension member 38, the free end of which is provided with

a loop 39. Secured to the bottom section 21 in a suitable position is a fixed loop 40. When this arrangement is disposed to serve as a closure to cover the open ends of the assembled units or sections of the casing, the main body 36 is swung downwardly to extend over the said open ends of some of the sections and units, and the extension member 38 is pulled or slid downward and outward to cover the open ends of the remaining sections or units, in which position the loop 39 is alined with the loop 40 so that the hasp of a padlock 41 may be passed therethrough, and the latter locked to hold the closure in operative position, thus guarding the contents of the sections or units against unauthorized removal when the device is not in use, all as shown in Figure 1. When the arrangement is disposed in open position and ready to serve as a copy rest, the padlock 41 being removed, the extension member is moved inward relative to the main body 36, and the latter is turned upwardly to the position shown in Figure 2, in which position it is erected in rearwardly inclined position above said top section 22, with its flanges 37 in position to engage and support, in conjunction with the main body 36, a book, papers to be copied or the like.

When the units or sections making up the casing are in assembled relation to each other, they are adapted to provide a plurality of compartments, disposed one above the other. Each compartment is adapted to hold a pile of sheets differing in character of purpose from the sheets in the other compartments. For example, in the illustration of my invention shown in the accompanying drawings, there are five compartments. The upper compartment contains a pile of letterheads 42 or the like, the next or second compartment below contains a pile of carbon sheets 43, the next or third compartment below contains a pile of copy sheets 44, the next or fourth compartment below contains a pile of carbon sheets 45, and the bottom compartment contains a pile of copy sheets 46. Each compartment is provided with a sheet ejecting means, and means for simultaneously operating said ejecting means is also provided, so that upon manipulation of the latter, one sheet is ejected from each compartment, and the several ejected sheets are thus brought together, so that the ends of the same may be grasped to withdraw the sheets entirely from the device in a desired ready collated relation, i. e. with the carbon sheets respectively disposed intermediate the letter head and copy sheets all ready for introducing into a typewriter machine. In handling the piles of sheets for introduction into the compartments, and particularly the thin carbon sheets, it is of advantage to have the sheets supported by a comparatively non-

flexible support or tray, and to this end removable bottom or supporting trays 47 are provided, having at their forward edges tabs 48, serving as finger pieces for withdrawing the same. The said trays may be provided with stops 49, if desired, such as shown in Figures 17 and 18, which serve to position half-sheets in the compartments in proper relation to the forward open ends of the same, and in proper relation to the ejector means of the compartments.

The ejector means, with which each section or unit is provided, comprises the following structure:—

Connected with the underside of the stop wall of each section or unit, adjacent to the forward end thereof, are a pair of longitudinally disposed laterally spaced apart parallel track members or slideways 50. These track members or slideways are preferably formed by striking the same out of the body of said top wall, so as to form downwardly spaced or off-set lips or ways 51. The track members or slideways thus formed are arranged in substantially central position intermediate the sides of the units or sections. Mounted on the track members or slideways, for longitudinal reciprocable movement thereon, is a carriage member 52, having at its sides lips 53 for slidably engaging over the lips or ways 51. Said carriage member 52 is provided, intermediate its ends, with a pair of depending laterally extending and opposed bearing portions 54, in which is mounted a transverse pintle 54'. Pivotaly mounted on said pintle 54' is a longitudinally disposed impeller bar 55. Removably connected with the inner or rearward extremity of said impeller bar 55 is an impeller block 56, to which is fixed a downwardly and forwardly obliquely projecting impeller point 57. Said impeller block 56 is split at its ends so as to receive the bifurcated end 58 of said impeller bar 55, thus frictionally attaching said impeller block to said impeller bar. Said impeller bar is provided with an arm 59 which projects forwardly from the pivotal connection of said impeller bar with said pintle 54'. It is preferable to render said impeller bar readily removable from said pintle 54', so that the same may be easily detached from operative relation to the carriage member 52, and withdrawn from the unit or section with which it cooperates, thus permitting replacements of worn or damaged impeller points 57 when desired. To this end said arm 59 is doubled back upon itself to provide a portion 60 having adjacent to its free end a semi-cylindrical member 61 corresponding with a similar semi-cylindrical member 62 provided in said main body of the impeller bar 55, which together provide bearing portions adapted to straddle said pintle 54'. The free end of said arm 59 possesses an up-

turned guide-lip 63. By means of the arrangement thus provided, a longitudinal outward pull upon the impeller bar 55 will tend to separate the members 61 and 62 due to the tensional yielding of the portion 60, so that said members may be easily pulled away or detached from the pintle 54'. When replacing the impeller bar 55 the guide-lip 63 is brought against the pintle 54', and an inward push is imparted to the impeller bar which separates the portion 60 sufficiently from the main body of the bar 55, so as to permit the members 61 and 62 to spring over the pintle 54' into operative relation thereto. Said carriage member 52 may be provided at its forward end with a pair of depending lugs 64, which straddle said arm 59, thereby preventing any undue lateral play of the impeller bar 55. Connected with the top wall of each section, and preferably pressed out of the same, is a downwardly and forwardly inclined lift cam 65. Said lift cam is positioned forward of the carriage member 52, and in such location that movement of the carriage member will carry the arm 59 of the impeller bar 55 into and out of engagement therewith, so that the said impeller bar 55 will be rocked on its pivotal connection to lower or raise its rear end. Normally the arm 59 is engaged with said lift cam 65, when the carriage member 52 occupies its normal forwardly disposed position, whereby said arm 59 is depressed and the rear end of the impeller bar 55 is lifted or raised to hold the impeller point 57 in normally raised and inoperative position. Pressed downwardly out of the top wall of each unit or section are a pair of deflecting lugs 66, which are disposed respectively on either side of said impeller bar 55 adjacent to the rearward end of the latter. These deflecting lugs 66 are downwardly and rearwardly inclined, and serve to deflect piles of paper, when the same are being inserted into a compartment, from accidentally engaging the raised impeller point 57, to the possible detriment of both the paper and said impeller point.

The means for actuating the carriage member 52 comprises a transmission lever 67 pivotally mounted on the underside of the top wall of the sections or units, the inner end of said lever 67 having a bifurcated portion 68 which straddles a pin 69 fixed to the carriage member 52, thus operatively coupling the lever with the latter. The forward end 70 of said lever 67 projects outwardly through a slot 70' provided in a side wall of the sections or units, so that said forward or free end of said lever is exteriorly disposed at a side of the unit or section with which it is connected. A pull spring 71, suitably anchored within each of the units or sections, is connected with the forward portion of said lever 67,

to hold the same in and return the same to normal initial position, whereby the carriage member 52 is maintained in normal initial position. The means for actuating each transmission lever 67 comprises a vertically oscillatable actuating lever 72 pivotally connected with the exterior side of each unit or section to extend beneath the free end of said lever 67 which projects outwardly at said side. Said actuating lever 72 has affixed thereto an upwardly projecting forwardly inclined push-cam 73 which operatively engages said lever 67, when the actuating lever 72 is swung downwardly. The actuating lever 72 of the top section or unit is provided with an upwardly projecting extension or tongue 74 upon the free end of which is fixed a finger piece or knob 75. The actuating levers 72 of the sections below the top section are each provided with upwardly projecting extensions or tongues 76, the upper free ends of which are provided with a vertical slot 77, dividing said ends into two arms. One of said arms is bent downwardly and outwardly to provide a finger-piece 78 for manipulating the actuating lever 72 to which it is attached independently of any operation of the actuating levers 72 of the sections or units above, and the other arm 79 is inwardly offset and obliquely inclined to extend upwardly beneath the actuating lever 72 of the section above. A means is provided for transmitting the operative movement of each actuating lever 72 to the next adjacent actuating lever below, so that the ejecting means of all sections or units may be simultaneously actuated, said coupling or transmitting means being of such a nature, however, that the same will not interfere with the actuation of selected groups of actuating levers 72 less than the whole number, since the coupling or transmitting means, will not effect or actuate any movement of actuating levers 72 above the one operated. Said coupling or transmitting means comprises a coupling lug 80 having a bifurcated end 81 which is transversely engaged to seat itself in the slot 77 of the extension or tongue 76, with its bifurcated end 81 straddling the latter, and its upper end transversely disposed in engagement with the underside of the actuating lever 72 next above, so that the downward movement of one actuating lever 72 will produce a downward thrust upon said coupling lug 80 which will be transmitted to the actuating lever 72 below to produce a simultaneously operated movement thereof, and so on down through the series of said actuating levers.

In operating the apparatus, if it is desired to eject a sheet from each compartment, the finger-piece or knob 75 is pushed downwardly, whereby the actuating levers 72 are all operated to in turn simultaneously

actuate the ejector devices of each section or unit. If it is desired, for example, to operate only the ejector devices of the two lowermost sections or units, to secure an extra carbon and copy sheet, the finger-piece 78 of the next to lowermost section or unit is actuated or pressed down, thereby operating only the actuating lever 72 of that section and that of the section below, while the actuating lever 72 of the sections above, and consequently the ejector devices actuated thereby, remain inactive.

The operation of the ejector devices with which each compartment is equipped is as follows:—

When the actuator lever 72 of a given compartment swings downward, its push-cam 73 thrusts against the adjacent transmission lever 67, turning the same on its pivot, and thereby transmitting to the carriage member 52 a rearward sliding movement. As the carriage is thus moved rearward, the arm 59 of the impeller bar 55 is retracted from engagement with the lift cam 65, thus permitting the rear end of the impeller bar 55 to drop down until its impeller point 57 engages the paper or top sheet which occurs shortly before the carriage member completes its rearward movement. In completing its rearward movement the carriage member causes the lowered impeller bar 55 to trail the impeller point 57 rearwardly, over the surface of the top sheet of paper in the compartment, see Figure 8. As the pressure actuating the downward swing of the said actuating lever 72 is released, the spring 71 reverses the movement of the transmission lever 67 and associated parts, so that the carriage member moves forward, thus causing the forwardly moved impeller bar to train the impeller point 57 forwardly. Since the impeller point is forwardly and downwardly inclined, it tends, on such forward movement to engage positively the top sheet, and thereby impels the same to accompany the forward movement, until the carriage member 52, in approaching its forward initial position, carries the arm 59 in position to ride up the inclined lift cam 65, thereby depressing said arm 59 and lifting the impeller bar 55 to remove the impeller point 57 from the paper, see Figure 9. By repeating the movement of the actuating lever 72, that is by oscillating the same a few times, the ejector means is caused to repeat the above movements, so that quick step by step outward movements of the top sheets of the piles within the compartments are caused, to project said sheets outwardly from the open ends of the latter, where they may be grasped by the operator, in their properly collated mutual relation, and entirely withdrawn from the compartments.

Since it is desirable to produce a succes-

sion of impelling movements of the ejector means of the several compartments, whereby the sheets are ejected by a series of short step by step impulses, I find it convenient to provide a means for guiding the operator in the manipulation of the actuating levers 72, so that the latter may be each oscillated through only a partial arc of its stroke, whereby the carriage 52, after it has moved rearwardly far enough to relieve the impeller bar 55 from raised position, will be reciprocated only through the zone of operative contact of the impeller point 57 with the paper. To this end I provide a means shown in Figure 16 of the drawings, the same comprising a forwardly projecting extension piece 82, which is fixed to the upper actuating lever 72 to move therewith, and which has its free end outwardly off-set to cross a flexible member 83 which is vertically disposed, and fixed by one end to the upper section or unit. Said member 83 possesses an outwardly projected nosing 84 having inclined upper and lower sides, and the spring member 83 is yieldable inwardly. The initial downward stroke of the upper actuating lever 72 carries the extension piece 82 downwardly past said nosing 84, the member 83 yielding to its passage. When the downward stroke of the actuating levers 72 are completed, the operator allows the same to come back until, the extension piece 82 engages the nosing 84, whereupon the operator again pushes downwardly on the actuating levers 72, repeating these movements, and thereby producing a series of short reciprocations of the ejector mechanism, until the sheets have been ejected far enough out of the compartments, whereupon the operator fully releases the actuating levers 72 for complete return to normal initial positions, thus permitting the extension piece 82 to pass upwardly by the nosing 84, which again yields to such passage, until the parts resume normal initial positions.

It may sometime be desirable to render the ejector means of certain compartments inoperative, while the others are permitted to function. To this end I provide, in connection with each carriage member 52, a means for holding out of service position the impeller bar 55 of such carriage member, this means consisting of an adjustable stop-member 85 pivotally mounted on the carriage member, and positioned so as to be swung at will into position over the arm 59 of said impeller bar 55, whereby as the carriage member is moved rearwardly and the arm 59 disengaged from the lift cam 65 it will engage said stop-member 85, and be retained thereby against movement, so that the rearward end of the impeller-bar will be retained in lifted or inoperative position during the movement of the carriage member. Said stop-member 85 is provided with

an outwardly projecting finger-piece 86, which extends slightly beyond the mouth of the compartment, when the carriage member is in normal initial position, and consequently is accessible to the operator when it is desired to position the stop-member in operative relation to the impeller bar 55.

The general construction and operation of the novel collating device will be readily understood from the above description, without further recapitulation, except to say that the device being formed from separable sections or units, the same may readily be enlarged by additional sections or units, to provide for a desired increase of the number of sheets to be operated upon and collated in the desired predetermined relation one to another. It will also be understood that the device is not limited for use in connection with typewriter papers, but may be employed for collating sheets or sheet materials of other characters and for other purposes.

I am aware that some changes may be made in the general arrangements and combinations of the several devices and parts of my present invention, as well as in the details of the construction of said parts without departing from the scope of the invention as set forth in the foregoing specification and as defined in the appended claims. Hence I do not limit my invention to the exact arrangements and combinations of the devices and parts as described in said specification, nor do I confine myself to the exact details of the construction of said parts as illustrated in the accompanying drawings.

I claim:—

1. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment, means for coupling said sections one above another, each section having a sheet ejecting means, actuating means for each ejecting means, and means intermediate said several actuating means for transmitting operative motion from one to another to produce a simultaneous operation thereof.

2. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment, means for coupling said sections together in vertically alined relation, each section having sheet ejecting means, means for simultaneously actuating said several ejecting means, and an extensible cover member pivoted to the uppermost section which is adapted to be moved to and secured in closing relation to the open ends of said sections.

3. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment, means for coupling said sections together in vertically alined relation, each section having sheet

ejecting means, means for simultaneously actuating said several ejecting means, and a combined cover member and copy support pivoted to the uppermost section which is adapted when lowered to serve as a closure for the open ends of said sections and when raised to serve as a copy support.

4. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment, means for coupling said sections together in vertically alined relation, each section having sheet ejecting means, means for simultaneously actuating said several ejecting means, the uppermost section having a bounding up-standing flange to form a receiving tray, and a keeper flap pivotally associated with said receiving tray.

5. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment, means for coupling said sections one above another, each section having sheet ejecting means including a transmission lever having an exteriorly projecting free end, each section having a vertically oscillatable actuating lever provided with a push-cam to cooperate with said free end of said transmission lever, and means intermediate said several actuating levers for transmitting operative motion from one to another to produce simultaneous operation of the several ejecting means.

6. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment, means for coupling said sections one above another, each section having sheet ejecting means including a transmission lever having an exteriorly projecting free end, each section having a vertically oscillatable actuating lever provided with a push-cam to cooperate with said free end of said transmission lever, each actuating lever having a finger piece for manipulating the same, and means intermediate said actuating levers whereby movement imparted to one of the same will be transmitted to all others below it.

7. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment; means for coupling said sections one above another; each section having a sheet ejecting means, comprising a longitudinally reciprocable carriage, an impeller bar pivoted to said carriage for vertical swing, an impeller point supported on the rear end of said impeller bar, a stationary lift-cam with which the forward end of said impeller bar is normally engaged to maintain the latter in a normal initial out of service position, a pivoted transmission lever having one end operatively engaged with said carriage, spring means for returning said transmission lever to normal initial position after

actuation, said transmission lever having an exteriorly projecting free end; each section having a vertically oscillatable actuating lever provided with a push-cam to cooperate with said free end of said transmission lever; and means intermediate said several actuating levers for transmitting operative motion from one to another to produce simultaneous operation of the several ejecting means.

8. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment; means for coupling said sections one above another; each section having a sheet ejecting means, comprising a longitudinally reciprocable carriage, an impeller bar pivoted to said carriage for vertical swing, an impeller joint supported on the rear end of said impeller bar, a stationary lift-cam with which the forward end of said impeller bar is normally engaged to maintain the latter in a normal initial out of service position, a pivoted transmission lever having one end operatively engaged with said carriage, spring means for returning said transmission lever to normal initial position after actuation, said transmission lever having an exteriorly projecting free end; each section having a vertically oscillatable actuating lever provided with a push-cam to cooperate with said free end of said transmission lever, each actuating lever having a finger piece for manipulating the same, and means intermediate said actuating levers whereby movement imparted to one of the same will be transmitted to all others below it.

9. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment; means for coupling said sections one above another; each section having a sheet ejecting means, comprising a longitudinally reciprocable carriage, an impeller bar pivoted to said carriage for vertical swing, an impeller point supported on the rear end of said impeller bar, a stationary lift-cam with which the forward end of said impeller bar is normally engaged to maintain the latter in a normal initial out of service position; a pivoted transmission lever having one end operatively engaged with said carriage, spring means for returning said transmission lever to normal initial position after actuation, said transmission lever having an exteriorly projecting free end; each section having a vertically oscillatable actuating lever provided with a push-cam to cooperate with said free end of said transmission lever; each actuating lever having a finger piece for manipulating the same, means intermediate said actuating levers whereby movement imparted to one of the same will be transmitted to all others below it; the actuating levers of the uppermost section

having a forwardly extending member, a yieldable member fixed on said section, and said yieldable member having a stop nosing for the purposes described.

10. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment, means for coupling said sections one above another, each section having sheet ejecting means including a transmission lever having an exteriorly projecting free end, each section having a vertically oscillatable actuating lever provided with a push-cam to cooperate with said free end of said transmission lever, and means intermediate said several actuating levers for transmitting operative motion from one to another to produce simultaneous operation of the several ejecting means; the actuating lever of the uppermost section having a forwardly extending member, a yieldable member fixed on said section, and said yieldable member having a stop nosing for the purposes described.

11. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment, means for coupling said sections one above another, each section having sheet ejecting means including a transmission lever having an exteriorly projecting free end, each provided with a push-cam to cooperate with said free end of said transmission lever, each actuating lever having a finger piece for manipulating the same, and means intermediate said actuating levers whereby movement imparted to one of the same will be transmitted to all others below it, the actuating lever of the uppermost section having a forwardly extending member, a yieldable member fixed on said section, and said yieldable member having a stop nosing for the purposes described.

12. In a device of the kind described, a plurality of separable sections each forming a sheet holding compartment; means for coupling said sections one above another; each section having a sheet ejecting means, comprising a longitudinally reciprocable carriage, an impeller bar pivoted to said carriage for vertical swing, an impeller point supported on the rear end of said impeller bar, a stationary lift-cam with which the forward end of said impeller bar is normally engaged to maintain the same in a normal initial out of service position, a pivoted transmission lever having an end operatively engaged with said carriage, spring means for returning said transmission lever to normal initial position after actuation, said transmission lever having an exteriorly projecting free end; each section having a vertically oscillatable actuating lever provided with a push-cam to cooperate with said free end of said transmission lever; and means intermediate said several

actuating levers for transmitting operative motion from one to another to produce simultaneous operation of the several ejecting means, the actuating lever of the uppermost section having a forwardly extending member, a yieldable member fixed on said section, and said yieldable member having a stop nosing for the purposes described.

13. The combination with an open ended compartment means adapted to contain a pile of sheets, of ejecter means for ejecting the top sheet of the pile, said ejecter means comprising a longitudinally reciprocable carriage, a slideway on the under side of the top wall of said compartment means on which said carriage rides, an impeller bar pivoted on said carriage for vertical swing, an impeller point supported on the rear end of said impeller bar, a stationary lift-cam with which the forward end of said impeller bar is normally engaged to hold the impeller bar in lifted position with its impeller point raised away from said top sheet, rearward movement of said carriage removing said forward end of said impeller bar from said lift-cam to lower said impeller point into impelling engagement with said top sheet, and means for reciprocating said carriage.

14. The combination with an open ended compartment means adapted to contain a pile of sheets, of ejecter means for ejecting the top sheet of the pile, said ejecter means comprising a longitudinally reciprocable carriage, a slideway on the under side of the top wall of said compartment means on which said carriage rides, an impeller bar pivoted on said carriage for vertical swing, an impeller point supported on the rear end of said impeller bar, a stationary lift-cam with which the forward end of said impeller bar is normally engaged to hold the impeller bar in lifted position with its impeller point raised away from said top sheet, rearward movement of said carriage removing said forward end of said impeller bar from said lift-cam to lower said impeller point into impelling engagement with said top sheet, and a pivoted transmission lever having one end operatively engaged with said carriage, spring means for returning said transmission lever and said carriage to normal initial position after actuation, said transmission lever having an exteriorly projecting free end, and a vertically oscillatable actuating lever provided with a push-cam to cooperate with said free end of said transmission lever.

15. The combination with an open ended compartment means adapted to contain a

pile of sheets, of ejecter means for ejecting the top sheet of the pile, said ejecter means comprising a longitudinally reciprocable carriage, a slideway on the under side of the top wall of said compartment means on which said carriage rides, an impeller bar pivoted on said carriage for vertical swing, an impeller point supported on the rear end of said impeller bar, a stationary lift-cam with which the forward end of said impeller bar is normally engaged to hold the impeller bar in lifted position with its impeller point raised away from said top sheet, rearward movement of said carriage removing said forward end of said impeller bar from said lift-cam to lower said impeller point into impelling engagement with said top sheet, a pivoted transmission lever having one end operatively engaged with said carriage, spring means for returning said transmission lever and said carriage to normal initial position after actuation, said transmission lever having an exteriorly projecting free end, and a vertically oscillatable actuating lever provided with a push-cam to cooperate with said free end of said transmission lever, and releasable means on said carriage for holding said impeller bar inoperative during the operation of said carriage.

16. The combination with an open ended compartment means adapted to contain a pile of sheets, of ejecter means for ejecting the top sheet of the pile, said ejecter means comprising a longitudinally reciprocable carriage, a slideway on the under side of the top wall of said compartment means on which said carriage rides, an impeller bar pivoted on said carriage for vertical swing, an impeller point supported on the rear end of said impeller bar, a stationary lift-cam with which the forward end of said impeller bar is normally engaged to hold the impeller bar in lifted position with its impeller point raised away from said top sheet, rearward movement of said carriage removing said forward end of said impeller bar from said lift-cam to lower said impeller point into impelling engagement with said top sheet, and means for reciprocating said carriage, and releasable means on said carriage for holding said impeller bar inoperative during the operation of said carriage.

In testimony, that I claim the invention set forth above I have hereunto set my hand this 27th day of February, 1922.

ELIAS MARCUSON.

Witnesses:

GEORGE D. RICHARDS,
ADOLPH HANSEN.