H. O. PETERSEN.

DELIVERY APPARATUS.

APPLICATION FILED FEB. 18, 1915.

1,167,214.

Patented Jan. 4, 1916.

3 SHEETS—SHEET 1.

Fig. 1.

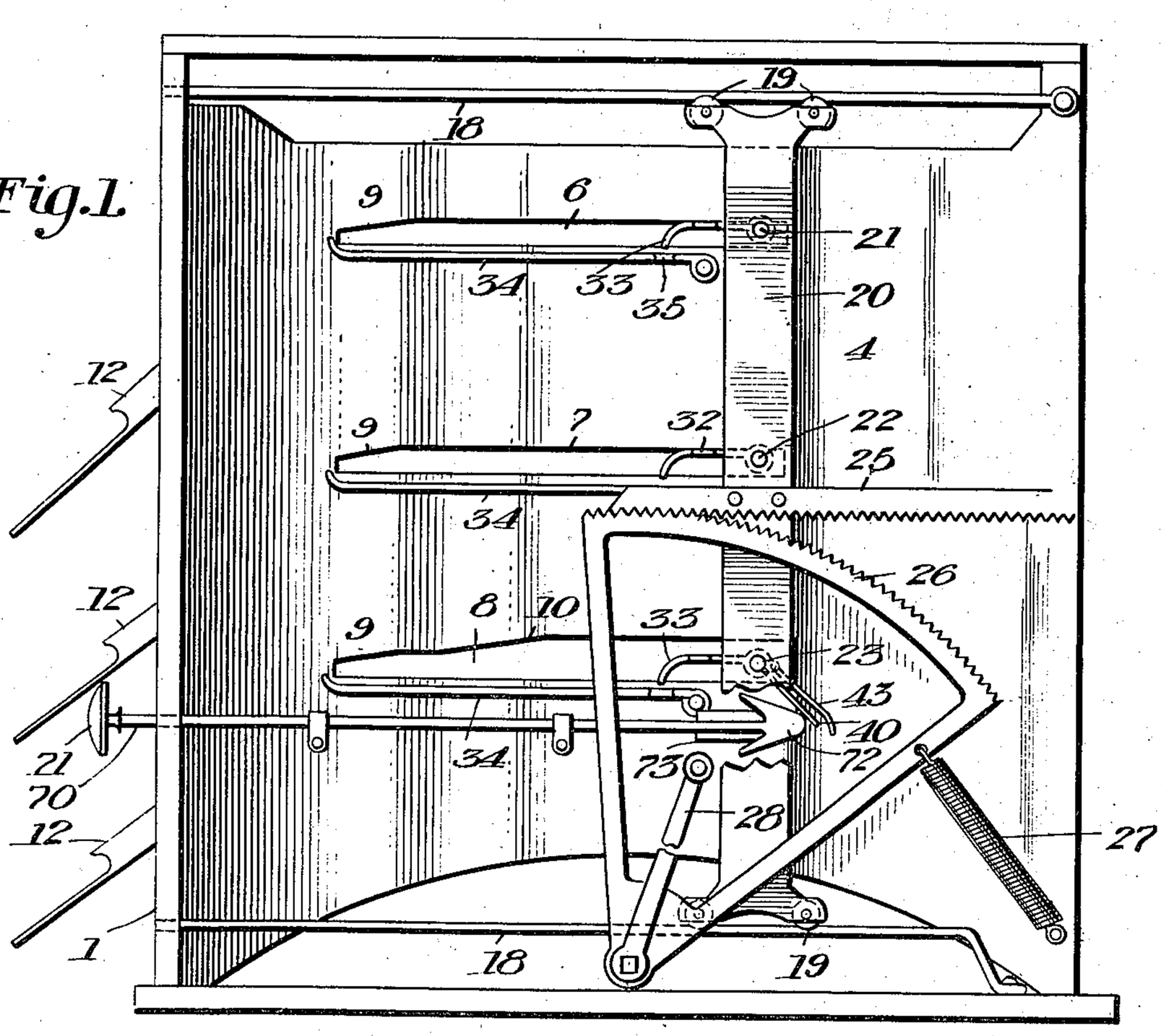
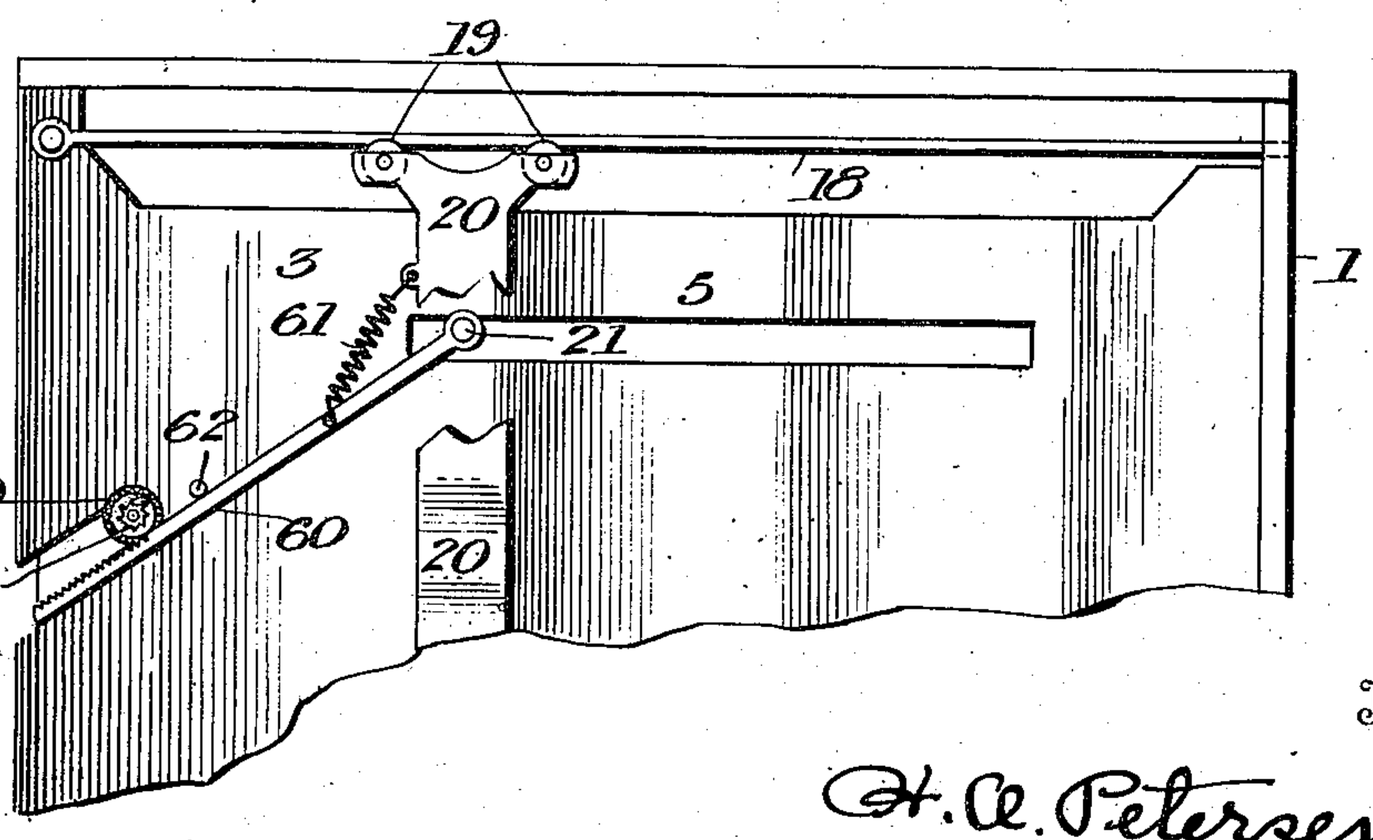


Fig. 2.



Witnesses

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3 SHEETS—SHEET 2.

Fig. 3.

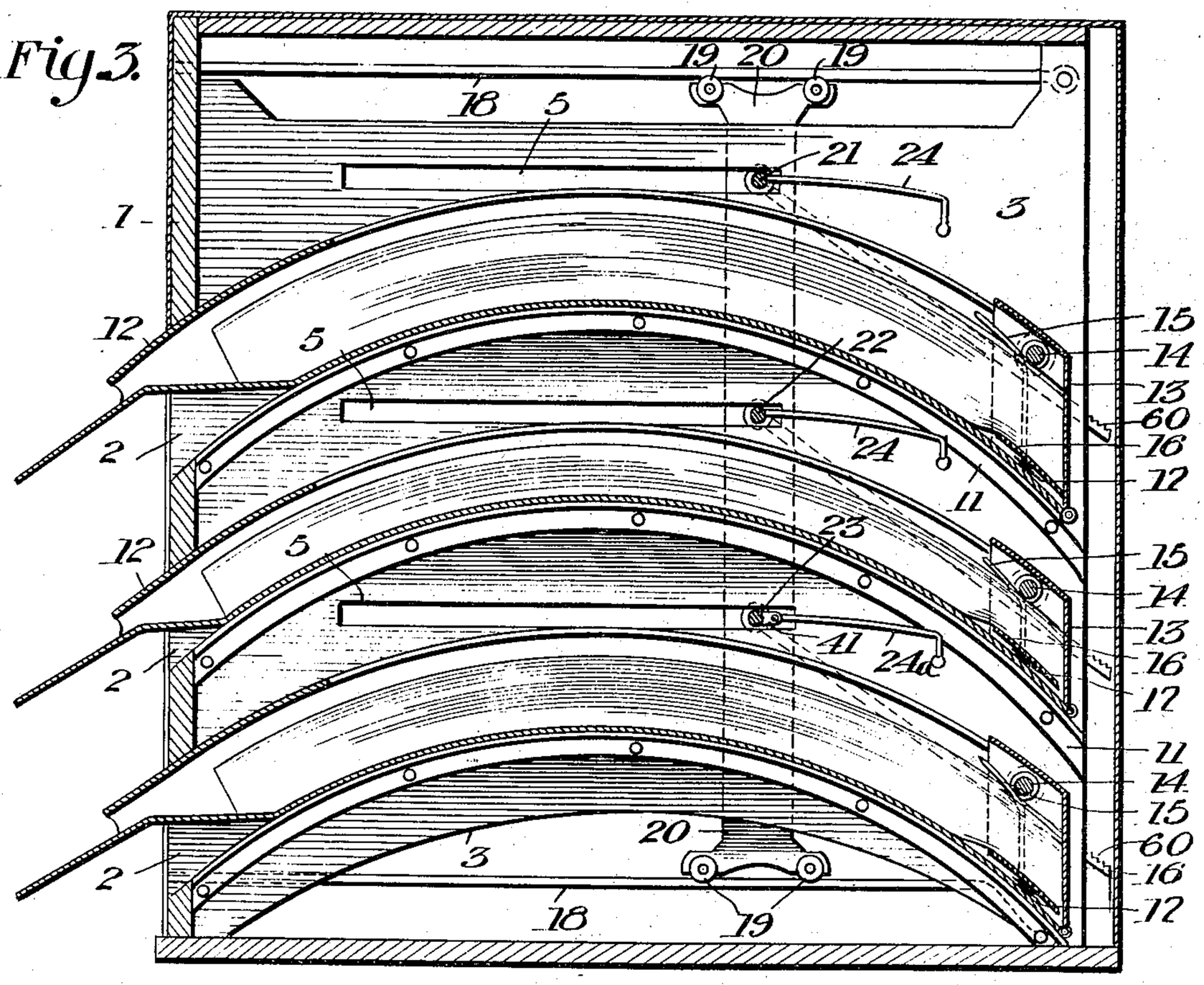
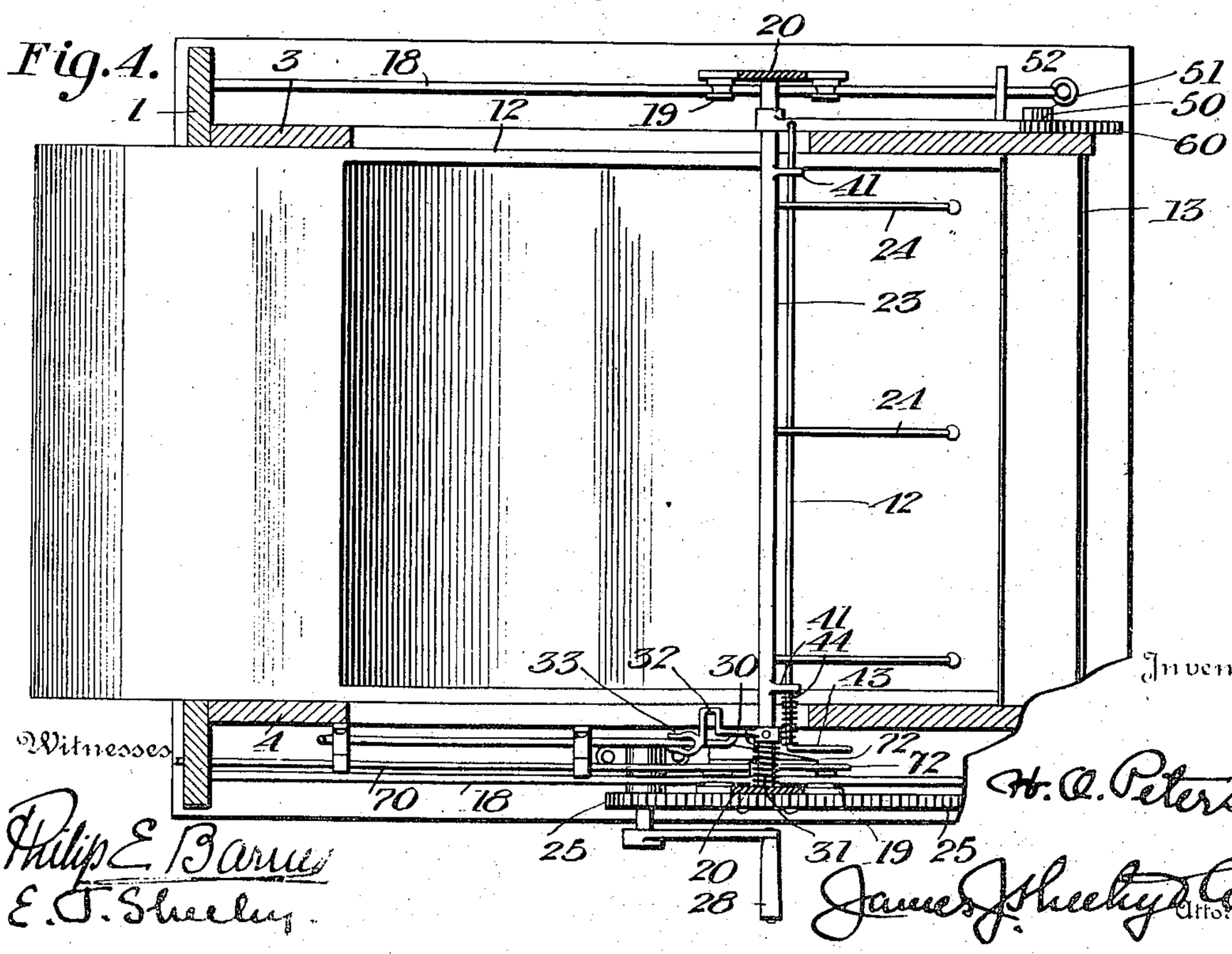


Fig. 4.



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3 SHEETS—SHEET 3.

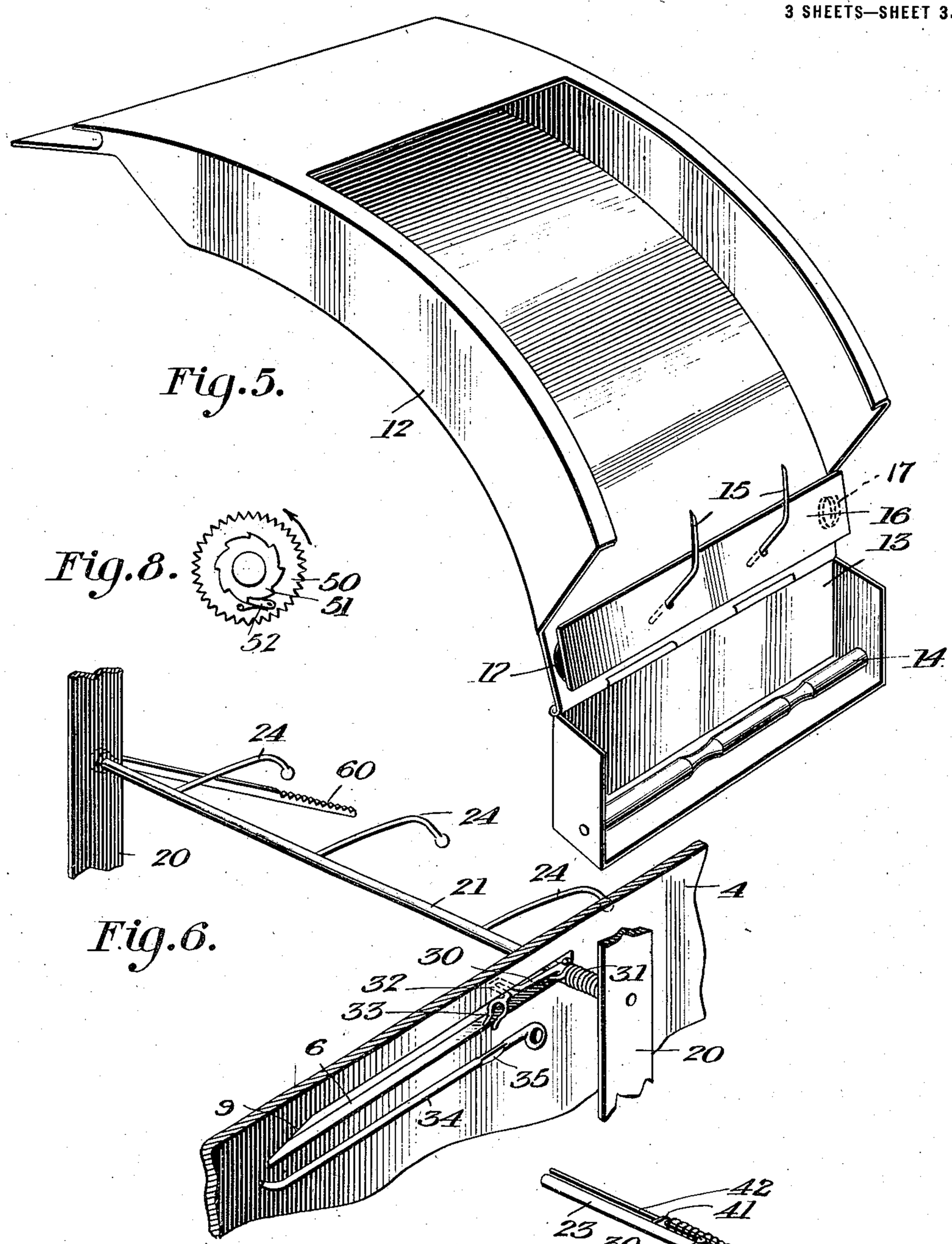

Fig. 5.

Fig. 8.

Fig. 6.

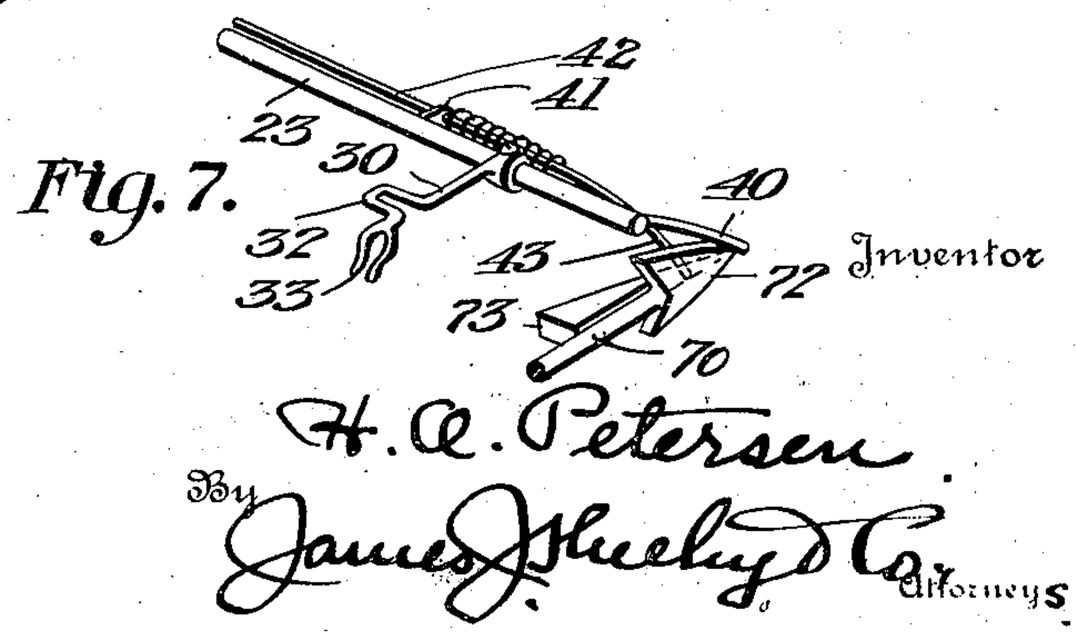

Fig. 7.

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UNITED STATES PATENT OFFICE.

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DELIVERY APPARATUS.

1,167,214. Specification of Letters Patent. Patented Jan. 4, 1916.

Application filed February 18, 1915. Serial No. 9,095.

To all whom it may concern:

Be it known that I, HANS O. PETERSEN, a citizen of the United States, residing at Newport, in the county of Newport and State of Rhode Island, have invented new and useful Improvements in Delivery Apparatus, of which the following is a specification.

My present invention pertains to delivery cabinets or apparatus; and it has for its general object to provide an apparatus constructed with a view to enabling an operator by one movement of a lever or other actuating element to draw from the apparatus a sheet of first copy paper, a carbon sheet and a sheet of second copy paper, and this without disarranging or injuring the sheets of the three sets that are neatly held in spaced relation in the apparatus.

Another object of the invention is the provision of means through the medium of which the withdrawal means complementary to the lower or first-copy paper may be temporarily placed out of commission, this in order that after three sheets, one from each set, have been drawn from the casing, the withdrawal of first-copy paper may be stopped so that the subsequent movements of the actuating element will be attended by the withdrawal of carbon sheets and second-copy paper sheets only, as when it is desirable to simultaneously produce an original or first-copy and a multiplicity of carbon copies.

My novel apparatus is also advantageous because of its capacity to hold a large quantity of the two kinds of paper and carbon sheets, because of the facility with which the sets of paper and carbon sheets can be replenished, and because of the durability and reliability of its mechanism as hereinafter described and claimed.

In the accompanying drawings which are hereby made a part hereof: Figure 1 is a side elevation of an apparatus constructed in accordance with my invention. Fig. 2 is a fragmentary broken elevation showing a portion of the opposite side of the apparatus, with reference to Fig. 1. Fig. 3 is a vertical longitudinal section of the apparatus. Fig. 4 is a section, taken in a plane above the lower drawer and parts appurtenant thereto. Fig. 5 is a detail perspective of one of the drawers. Fig. 6 is a detail sectional perspective showing the sheet-withdrawing mechanism complementary to the two upper drawers and sheets thereon. Fig. 7 is a detail perspective of a portion of the mechanism for placing the sheet-withdrawal means of the lower drawer out of commission. Fig. 8 is an enlarged elevation of the ratchet mechanism at the left-hand end of each roller for starting the withdrawal of the sheets.

Similar numerals of reference designate corresponding parts in all of the views of the drawings.

The cabinet illustrated has a front wall 1 in which are openings 2 and also has side walls 3 and 4, Figs. 1 and 3. In the wall 3 are plain horizontal slots 5, one to each set of sheets, while in the wall 4 are three horizontal slots 6, 7 and 8, one to each set of sheets; the upper slots 6 and 7 having the inclined walls 9, and the lowermost slot 8 having the upper wall 10, shaped as shown in Fig. 1.

At their inner sides the walls 3 and 4 are provided with cleats 11, curvilinear in form, and on these cleats are removably arranged drawers 12, three in number. Each drawer is preferably of the configuration and construction shown in Figs. 3 and 5, and each is provided at its rear end with a hinged member 13, in which is mounted a roller 14, of rubber or other suitable yielding material. When the members 13 of the drawers are in the positions shown in Fig. 3 the rollers 14 are designed to rest above the superimposed sheets in the drawers, for an important purpose hereinafter set forth. Fixed to and rising from the rear portion of the bottom wall of each drawer are pins 15 upon which the sheets are designed to be impaled. The pins 15 have forwardly reaching arms on their upper portions as clearly appears in Fig. 3, and by reference to said figure it will be noticed that the rollers 14 engage the uppermost sheets at points immediately in rear of the bends in the impalement pins. Loosely mounted on the pins 15 are pressure plates 16, and interposed between said plates 16 and the bottom walls of the drawers are compression springs 17. These springs 17 serve to press the plates upwardly and thereby serve to hold the superimposed sheets under yielding pressure against the bends of the pins 15 so that the uppermost sheets of the three sets are always in readiness to be slipped past the bends in the impalement pins when the rollers 14 are turned about their axes as hereinafter described.

Manifestly the drawers 12 are adapted to be expeditiously removed from the cabinet to receive fresh supplies of sheets, and as readily replaced in the cabinet.

Arranged at the outer sides of the walls 3 and 4 are lower and upper track rods 18, and engaging said rods are circumferentially grooved wheels 19 on the uprights 20 of the carriage, that is movable toward and from the front wall 1 of the cabinet; the said uprights 20 being disposed at the outer sides of the walls 3 and 4 as appears in Figs. 1, 3 and 4. Carried by and extending between the uprights 20 are rock shafts 21, 22 and 23; the said shafts being carried or extended loosely through the slots 5 in the wall 3 and the slots 6, 7 and 8 in the wall 4. Each of the rock-shafts 21 and 22 is provided with a plurality of rearwardly reaching arms 24, designed to engage the uppermost sheet of the adjacent set of sheets and withdraw the said sheet incidental to the forward movement of the carriage. The carriage is moved forwardly and rearwardly through the medium of the mechanism best shown in Fig. 1, which mechanism comprises a horizontal rack bar 25, fixed to one of the uprights 20, a gear sector 26 intermeshed with said rack bar, a retractile spring 27 interposed between and connected to the gear sector and the rear portion of the cabinet, and a crank lever 28 fixed to and movable with the gear sector. Manifestly when the gear sector is rocked forwardly the carriage will be moved forwardly, while when the crank lever 28 is released the spring 27 will serve to draw the carriage and its appurtenances back to their normal positions shown in Figs. 1 and 3.

It is desirable to have the arms 24 engage the sheets that are uppermost during the forward movement of the carriage, and to have the said arms rest clear of the sheets during the rearward movement of the carriage, this in order to prevent the said arms from rumpling or otherwise injuring the sheets incidental to the rearward traverse of the carriage. To this end I provide each rock shaft 21 and 22 with a crank arm 30 and a torsion spring 31 such as best shown in Fig. 6, the spring 31 being constructed and arranged to yieldingly press the arms 24 toward the opposed sheets, and the crank arm 30 being provided with a lateral portion 32 designed to move in the adjacent slot 6, and being also provided with a bifurcated extremity 33. The said bifurcated extremity is designed to coöperate with a fixed horizontal rod 34, and therefore the bifurcated extremity is provided with a contracted mouth and the rod 34 is provided with a reduced portion 35. By virtue of this construction and the fact that the bifurcated extremity is resilient, it will be observed that during the forward movement of the carriage the arms 24 will engage and draw with them the uppermost of the two upper sets of sheets. When the arm 32 engages the incline 9 of the slot the bifurcated extremity will be positively pushed into engagement with the rod 34 and will consequently hold the arms 24 up above and clear of the sheets below them. The arms 24 will remain in such position until the rearward movement of the carriage is completed, at which time the bifurcated extremity 33 will be opposite the reduced portion 35 of the rod 34, whereupon the spring 31 will operate to restore the arms 24 and the crank arm 30 to the normal position shown in Figs. 3 and 6. This operation is true of both rock shafts 21 and 22 and their appurtenances. It is also true to a certain extent of the lowermost rock shaft 23, which rock shaft is provided with arms 24^a to engage the uppermost sheet of the lower set, and is also provided with a crank arm 30 similar to the crank arms 30 of the shafts 21 and 22. The crank arm 30 of the shaft 23 is designed to coöperate with the wall 10 of the slot 8, and with a fixed rod 34 arranged adjacent to the said slot. The rock shaft 23 differs from the upper shafts 21 and 22 in that it is provided with a finger 40, Figs. 1, 4 and 7, and also in that it carries apertured lugs 41 in which is an endwise movable rod 42, having adjacent to the finger 40 a finger 43. The rod 42 is normally held in and returned to the position shown in Fig. 7 by a coiled spring 44, and is designed for an important purpose hereinafter set forth.

Loosely mounted on one end of each roller 14 is a spur gear 50, while fast to the roller is a ratchet wheel 51, designed to be engaged by a spring pressed pawl 52 carried by the spur gear. By virtue of this provision it will be observed that when the spur gear is rotated in the direction of the arrow in Fig. 8, the roller will remain idle, while when the spur gear is rotated in the opposite direction the roller will be caused to turn with the spur gear.

On each of the rock shafts 21, 22 and 23 is mounted a rack bar 60, and each of the said rack bars is intermeshed with one of the spur gears 50, whereby when the carriage is moved forwardly each of the rollers 14 will be rotated in the proper direction to start a sheet over the bent portions of the impalement pins 15. In the preferred embodiment of my invention, each of the rack bars 60 is loose on its respective shaft and is held by a retractile spring 61 against a stop 62, which serves when the carriage is drawn rearwardly in the casing to assure proper engagement of the rack bar with its complementary spur gear 50.

The rack bar 60 on the lower shaft 23 is movable laterally on said shaft through the medium of the rod 42, this to carry the said rack bar out of and into engagement

with the teeth of its complementary spur gear 50.

For coöperation with the finger 40 of the rock shaft 23 and the bent portion 43 of the rod 42, I provide the endwise movable rod 70 which has a knob 71 at its forward end. At its rear end the said rod 70 is provided with a beveled head 72 to engage the finger 40, and with a cam portion 73 to engage the bent portion of the rod 42. Consequently when the rod 70 is pushed rearwardly, the head 72 acting against the finger 40 will rock the shaft 23 and raise the arms 24 of said shaft away from the sheets below said arms so that forward movement of the arms with the carriage will not be attended by a withdrawal of a sheet of first copy paper. The said rearward movement of the rod 70 will also serve to move the rod 42 endwise against the action of the spring 44, and will enable said rod 42 to move the lowermost rack bar 60 out of engagement with its complementary spur gear 50, so that when the carriage is moved forwardly the roller on which the spur gear is mounted will remain idle.

The placing out of commission of the lower arms 24 and the lower roller 14 is advantageous because it permits of a multiplicity of carbon and second copy sheets being withdrawn from the apparatus on forward movements of the carriage without the withdrawal of a corresponding number of first copy sheets from the cabinet.

When the rod 70 is drawn forwardly the head 72 will be disengaged from the finger 40, and the cam portion 73 will be disengaged from the rod portion 43, whereupon the arms 24 will be permitted to gravitate to the normal working position, and the spring 44 enabled to draw the rod 42 back to its normal position so as to replace the rack bar 60 to which said rod 42 is connected in engagement with its complementary spur gear 50. With this done, it will be obvious that each forward movement of the carriage will be attended by a withdrawal of a first-copy sheet from the lower drawer, of a carbon sheet from the intermediate drawer, and of a second copy sheet from the upper drawer.

It will be gathered from the foregoing that in order to simultaneously withdraw the three sheets from the cabinet, it is simply necessary for the operator to pull the crank lever forwardly; and it will also be observed that when the operator releases said crank lever the carriage and its appurtenances will be quickly returned to their normal positions and this without disarrangement of or injury to the sheets remaining in the cabinet. It will further be observed that when it is desired to make a first copy and a multiplicity of carbon copies, it is simply necessary to operate the apparatus with the rod 70 in the position shown so as to accomplish the withdrawal of a first copy sheet, a second copy sheet and a carbon sheet, and afterward move the rod 70 rearwardly so as to place the lower sheet-withdrawal means out of commission, and then operate the machine until sufficient carbon sheets and second copy sheets are ejected for the desired number of carbon copies.

Manifestly when desired all of the mechanism with the exception of the crank lever can be inclosed in a casing or in side walls arranged outside of the working parts, but for the sake of clearness I have not illustrated the said casing or side walls nor do I desire to be understood as confining myself to the same.

In practice my novel apparatus is adapted to be made of such a size that it can be placed on a typewriter table back of the typewriter machine and within convenient reach of the operator.

Having described my invention, what I claim and desire to secure by Letters-Patent, is:

1. In apparatus for the purpose described, spaced means for holding superimposed sheets of material, a reciprocatory carriage, means actuable by movement of the carriage and constructed and arranged on movement of the carriage to withdraw one sheet of each set, and means for temporarily placing out of commission the sheet-withdrawing means complementary to one set of sheets.

2. In apparatus for the purpose described, spaced and suitably-supported means for holding sets of superimposed sheets of material, suitably-supported means for initially moving the uppermost sheets of each set, a reciprocatory carriage, means connected with and movable by the carriage for actuating the said means for initially moving the uppermost sheets of each set, and means on the carriage constructed and arranged on movement of the same in one direction to withdraw the uppermost sheets of the sets.

3. In an apparatus for the purpose set forth, spaced means for holding sets of superimposed sheets of material, impalement pins carried by said means and adapted to engage and hold the sheets, a roller carried by said means and adapted when rotated to start the uppermost sheet off the pins, a reciprocatory carriage, means on the carriage constructed and arranged on movement of the carriage in one direction to withdraw the uppermost sheets of the sets, and means constructed and arranged on movement of the carriage in the other direction to hold said sheet-withdrawing means out of engagement with the sheets.

4. In apparatus for the purpose described, spaced and suitably-supported means for holding sets of superimposed sheets of material, suitably-supported means for initially

moving the uppermost sheets of each set, a reciprocatory carriage, means connected with and movable by the carriage for actuating the said means for initially moving the uppermost sheets of each set on movement of the carriage in one direction and leaving said means idle on movement of the carriage in the opposite direction, means on the carriage constructed and arranged on movement of the carriage in one direction to withdraw the uppermost sheets of the set, and means constructed and arranged on movement of the carriage in the other direction to hold said sheet-withdrawing means out of engagement with the sheets.

5. In apparatus for the purpose described, means for supporting sets of first-copy sheets, carbon sheets and second-copy sheets, a reciprocatory carriage, means actuable by movement of the carriage and constructed and arranged on movement of the carriage to withdraw one sheet of each set, and means for temporarily placing out of commission the sheet-withdrawing means complementary to the first-copy sheets.

6. In an apparatus for the purpose described, the combination of a cabinet, upwardly-curved drawers arranged one above the other and spaced apart in the cabinet with their convex sides uppermost, impalement pins carried by said drawers and adapted to engage and hold superimposed sheets of material, rollers also carried by the drawers and adapted when rotated to start the uppermost sheet of each set of sheets off the pins, a carriage, means movable with the carriage for rotating the roller, means on the carriage constructed and arranged on movement of the carriage in one direction to withdraw the uppermost sheets of each set, and means constructed and arranged on movement of the carriage in the other direction to hold said sheet-withdrawing means out of engagement with the sheets.

7. In apparatus for the purpose described, the combination of a cabinet, track rods therein, a carriage having wheels engaging said track rods, a rack bar fixed to the carriage, a movable gear mounted on the cabinet and intermeshed with said rack bar, and an actuating element fixed with respect to said gear.

8. In apparatus for the purpose described, the combination of a cabinet, a wall fixed in the cabinet and having a slot and also having the forward portion of one wall of the slot inclined, a carriage movable alongside said wall, a rock shaft journaled in said carriage and having sheet-engaging arms, a rail fixed to the wall and having a reduced portion adjacent to its rear end, a crank arm fixed to the rock shaft and having a lateral portion movable in said slot and also having a resilient bifurcated portion provided with a contracted mouth and adapted to engage said rail, and a spring constructed and arranged to rock the shaft and normally hold the sheet-engaging arms in working position.

9. In apparatus for the purpose described, the combination of means for supporting superimposed sheets of material, impalement pins carried by said means and adapted to engage and hold the sheets, a roller carried by said means and adapted when rotated to start the uppermost sheet off the pins, a carriage, and means movable with the carriage for rotating the roller.

10. In apparatus for the purpose described, the combination of means for supporting superimposed sheets of material, impalement pins carried by said means and bent and adapted to engage and hold the sheets, a roller carried by said means and adapted when rotated to start the uppermost sheet off the pins, a carriage, means movable with the carriage for rotating the roller, and sheet-withdrawing means carried by and movable with the carriage.

11. In apparatus for the purpose described, means for supporting superimposed sheets of material, bent impalement pins fixed to and rising from said means, a pressure plate loosely mounted on the pins and arranged to rest below the sheets of materiage, springs for pressing said plates upwardly, a roller arranged immediately in rear of the bend of the pins and adapted to engage the uppermost sheet to start the same off the pins, means for actuating the roller, and means for withdrawing the uppermost sheet.

12. In apparatus for the purpose described, the combination of a cabinet, superimposed drawers arranged in the cabinet and adapted to hold first-copy paper, carbon paper and second copy paper, respectively, a carriage, means carried by the carriage for withdrawing a carbon sheet and a second copy sheet of paper on each movement of the carriage in one direction, means for withdrawing a sheet of first-copy paper on movements of the carriage in one direction, and means for temporarily moving and holding the last-named means out of commission, whereby the same is rendered idle incidental to movements of the carriage in said direction.

In testimony whereof I have hereunto set my hand in presence of two subscribing witnesses.

HANS O. PETERSEN.

Witnesses:
P. H. McINTIRE,
MAUDE C. COLVIN.