

Feb. 28, 1939.

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2,149,098

DISPENSING APPARATUS FOR KNIVES AND LIKE ARTICLES

Filed July 6, 1936

2 Sheets-Sheet 1

Fig. 1.

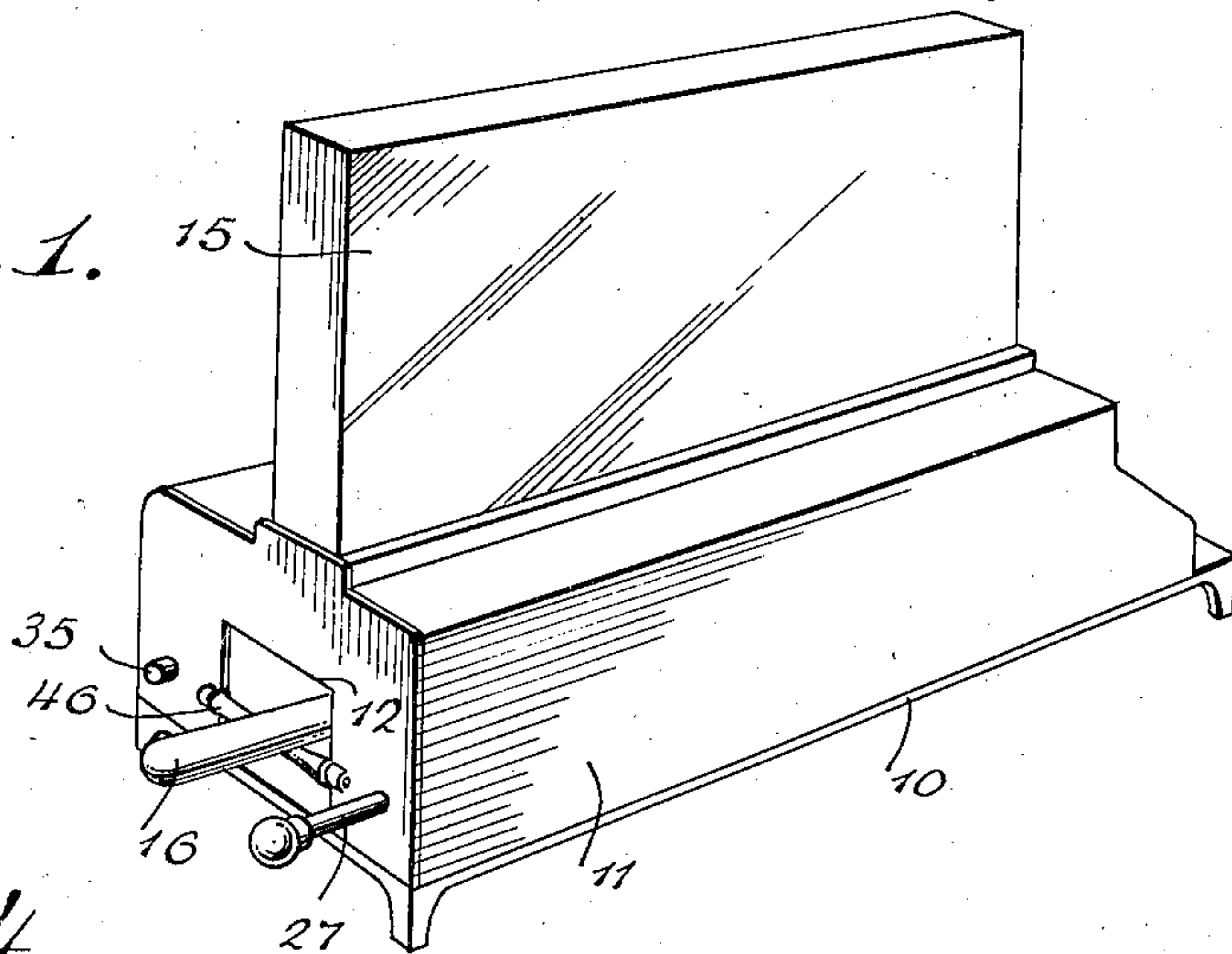


Fig. 4.

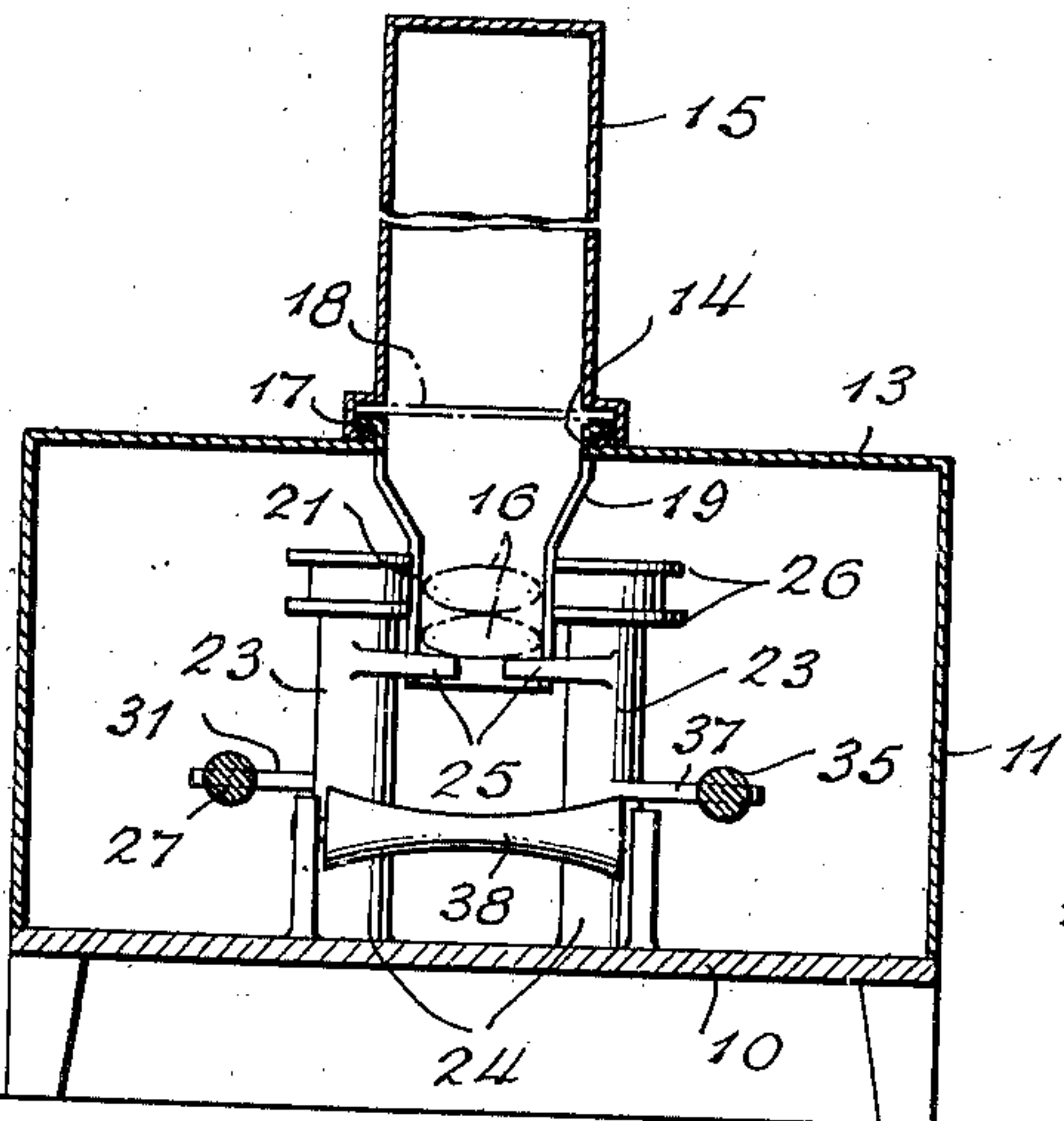


Fig. 5.

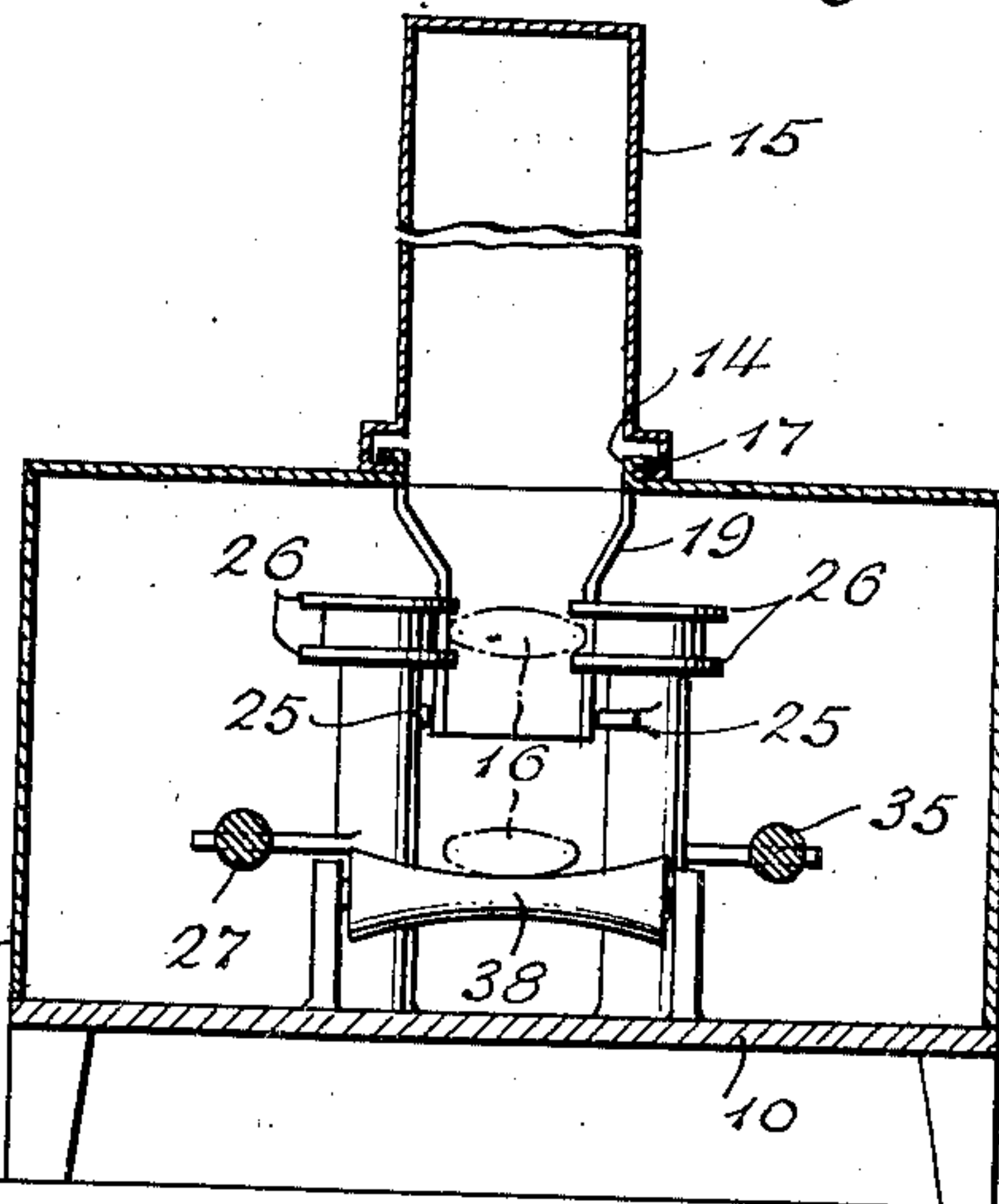
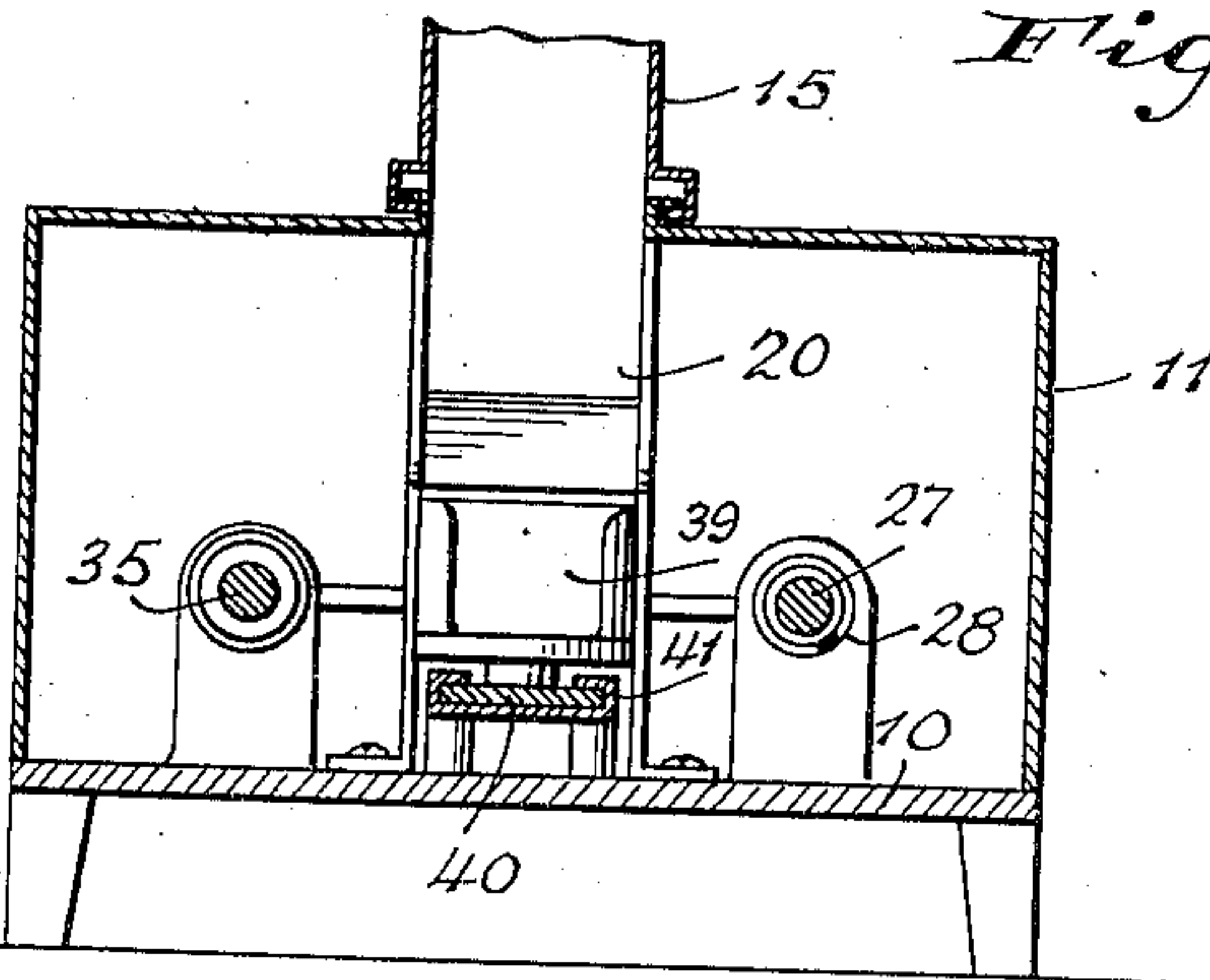


Fig. 6.



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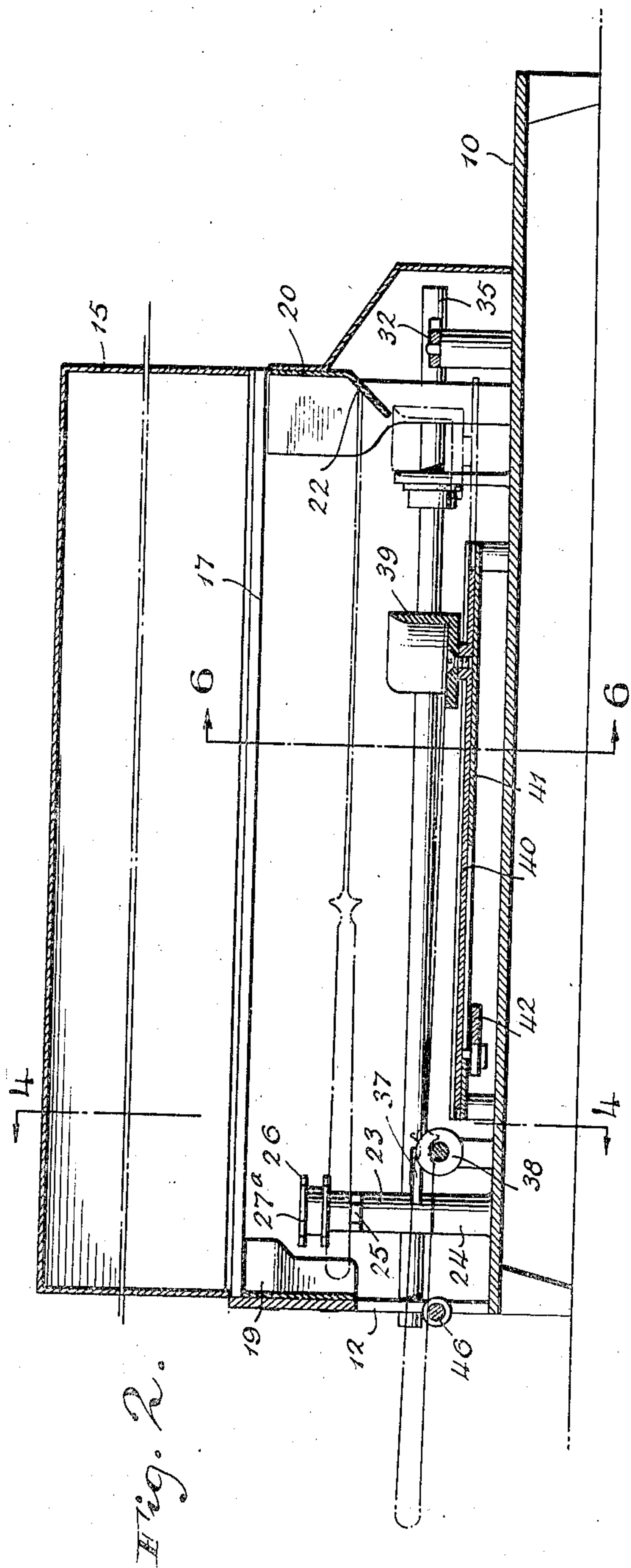
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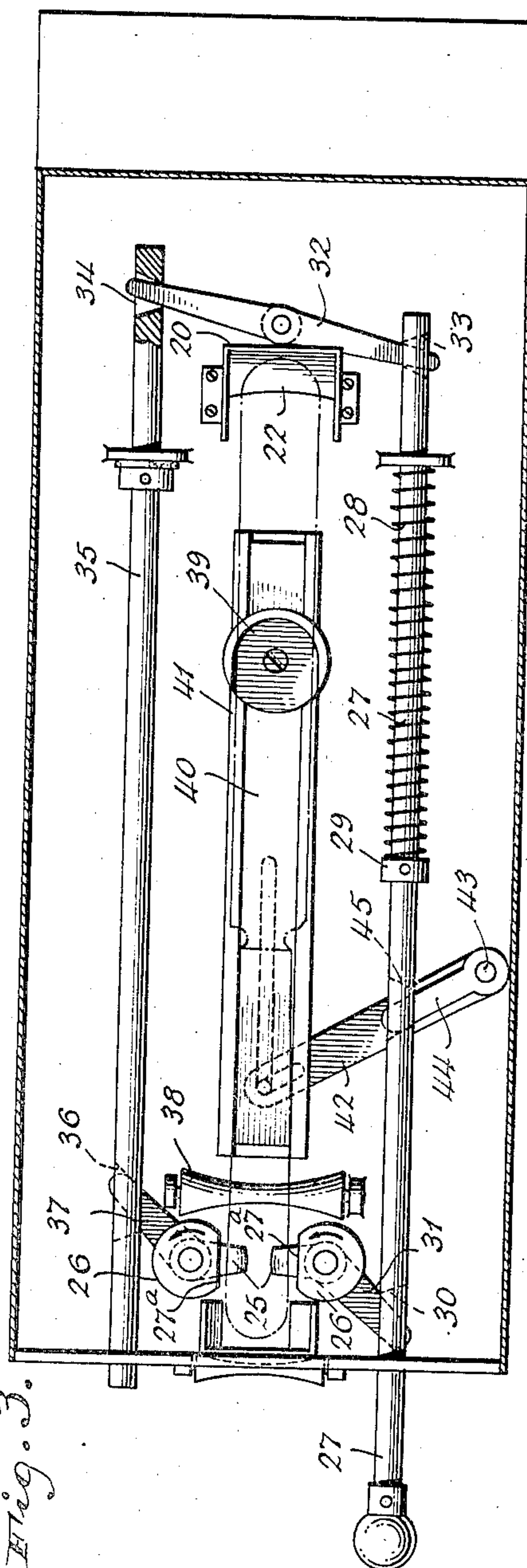
DISPENSING APPARATUS FOR KNIVES AND LIKE ARTICLES

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3. Die

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DISPENSING APPARATUS FOR KNIVES AND
LIKE ARTICLES

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Application July 6, 1936, Serial No. 89,000

9 Claims. (Cl. 312—67)

This invention relates to improvements in dispensing apparatus and has for one of its objects to provide an improved apparatus of simple and practical design suitable for use in cafeterias and the like, and by means of which articles such as knives and other eating utensils may be dispensed to patrons.

Another object is to control the dispensing of articles from the apparatus so that the same will be individually discharged therefrom by the operation of an improved mechanism which releases one article at a time from a stack and discharges said article when a plunger member is actuated.

The above and other objects will appear more clearly from the following detailed description when taken in connection with the accompanying drawings which illustrate a preferred embodiment of the inventive idea.

In the drawings:

Figure 1 is a perspective view of the apparatus constructed in accordance with the invention.

Figure 2 is a vertical longitudinal section there-through illustrating the position of the parts at the time an article, such as a knife, has been discharged from the casing of the apparatus to a position where it may be completely withdrawn from the casing, said position also being that of the normal condition of the apparatus prior to a release of an article from the receptacle and hopper in which such articles are stored.

Figure 3 is a horizontal section through the casing of the apparatus, showing the operating mechanism in plan view.

Figure 4 is a vertical transverse section on the line 4—4 of Figure 2 illustrating the normal position of the article-supporting members.

Figure 5 is a similar view showing the operated position of said members and the position of the lowermost article in the stack after its release by the operation of said supporting members, and

Figure 6 is a vertical transverse section on the line 6—6 of Figure 2.

Referring more particularly to the accompanying drawings the apparatus is shown as comprising a base 10 supporting a casing 11 having a discharge outlet 12 in the front wall thereof and being further provided in its top 13 with a longitudinal opening 14 extending the length of said top. Disposed above the top 13 and aligned with said opening is a removable article-containing receptacle 15 of sufficient size and dimensions to receive a supply of articles such as the knives

16 in stacked formation. The receptacle 15 is mounted in position by a sliding engagement with the top of the casing and for this purpose said top and the receptacle are provided with a tongue and groove formation as indicated at 17. Preparatory to mounting the filled receptacle 15 in its inverted position on the casing, a removable cover, indicated in dotted lines at 18 in Figure 4, is slid into the groove of the receptacle so as to retain the knives in position therein when the receptacle is inverted and being mounted in its position on the casing. Upon completion of this operation the cover 18 is removed so as to permit the knives within the receptacle to drop into a hopper in the casing. This hopper consists of the front and rear members 19 and 20 secured within the casing and both aligned with the opening 14 in the top thereof. The front member 19 has a constricted lower end 21 to receive the handles of the two lowermost knives 16, as viewed in Figure 4, while the rear member 20 is provided with a forwardly inclined wall 22 which supports the free end of the lowermost knife, as seen in dotted lines in Figure 2.

To maintain the handle ends of the knives in position for individual release and subsequent discharge from the casing, supporting means are provided adjacent the front of the casing and in cooperation with the hopper member 19, said means consisting of two oscillatory supporting members 23 arranged on opposite sides of the lower end 21 of said hopper member. Each member 23 is in the form of a sleeve loosely mounted for oscillatory movement upon a standard 24 and provided adjacent its upper end with a supporting lug or shoulder 25. Normally, the two lugs 25 of the members 23 extend inwardly toward each other and beneath the lower end of the hopper 19 so that the handle of the lowermost knife 16 rests thereon, thereby supporting the stack of knives within the hopper and receptacle 15. When the members 23 are oscillated in a manner to appear in the course of the description, the lugs 25 are swung aside to positions where they will no longer support the lowermost knife and the latter will be permitted to drop from the hopper. In order to prevent the release of more than one knife at a time, when said members 23 are oscillated, further means are provided on said members for engaging and supporting the next lowermost knife handle until the members 23 are restored to the normal positions wherein the lugs 25 will again be projected beneath the last-named knife. Such further means comprise two laterally extending flanges

26 at the upper end of each of the members 23 and spaced apart a sufficient distance to receive one edge of the knife handle therebetween. Said flanges 26 extend circumferentially about each member 23 for a greater portion thereof but at 5 27^a (Figure 3) directly above the lugs 25 the flanges terminate in straight edges so as not to engage the handle of the next lowermost knife when the members 23 are in their normal position. 10 However, when said members 23 are oscillated to withdraw the lugs 25 from beneath the lowermost knife, the flanges 26 will be turned to engage on opposite sides of the next lowermost knife before the lowermost knife is released and the 15 former knife will then be held from dropping. Upon the return movement of the members 23 after the release of the lowermost knife, the lugs 25 will again be swung into supporting position so that the then lowermost knife in the 20 stack will fall upon said lugs after the flanges 26 have been disengaged from said knife and the parts will then be in position for another operation.

To accomplish the release of a knife by the 25 operation of the members 23 as just described, there is preferably provided an operating mechanism consisting of a plunger 27 extending longitudinally of the casing 11 and slidably mounted in suitable bearings adjacent one side of said 30 casing, with the front end of said plunger projecting through the front wall of the casing so that it may be forced inwardly by a person desiring one of the articles. The plunger 27 is yieldably held in its projected or normal position by the spring 28 coiled about said plunger 35 and interposed between one of its bearings and a collar 29 secured on the plunger. Adjacent the forward end of the plunger and at a point within the casing, said plunger is provided with 40 a slot 30 to receive the free end of an arm 31 carried by the adjacent supporting member 23 so that when said plunger is forced inwardly the arm 31 will be swung therewith to turn the member 23 adjacent thereto in the direction of 45 the arrow indicated in Figure 3 and thereby withdraw the lug 25 from beneath the lowermost knife. This operation of the plunger is also utilized to operate the other supporting member 23 through the medium of a rocker arm 32 adjacent 50 the rear end of the casing, one end of said arm projecting into the opening 33 in the rear end of the rod 27 while the other end of said arm engages in a similar opening 34 in the rear end of a sliding rod 35 supported in parallel relation to the plunger 27. Adjacent the front end 55 of the rod 35 the same is provided with an opening 36 to receive the free end of an arm 37 carried by the other supporting member 23 and adapted to turn said member in the direction indicated by the arrow in Figure 3, when the 60 plunger 27 is forced inwardly, so as to withdraw the lug 25 of said other member 23 from engagement with the lowermost knife and engage the flanges 26 with the next lowermost knife. After 65 the release of the knife as described and withdrawal of pressure upon the plunger 27, the latter is projected outwardly to its normal position under the influence of the spring 28 and this movement of said plunger effects a reversal 70 of the turning movement of the supporting members 23 so that the same will be restored to their normal position. This last-named movement of the plunger 27 is also utilized, as will appear from the following description, to effect the discharge of the released knife to the dotted line

position shown in Figure 2 so that it may be withdrawn from the casing.

When a knife is released from the stack as described the handle end thereof falls upon an idler roller 38 supported upon the bottom of the 5 casing directly behind the members 23. Said roller 38 is preferably tapered from its ends toward the middle thereof and engages in the usual groove formed between the inner ends of the knife handle and blade, as indicated in Figure 10 2, when the knife has been projected to its discharged position, the engagement of the roller in said groove acting as a stop to limit the discharging movement of the knife.

At the same time that the handle of the knife 15 is dropped to its position upon the roller 38 the inclined wall 22 of the rear hopper member 20 acts to guide the free end of the blade of the knife forwardly so that said end falls into an abutment 39 of the carriage which has been previously moved rearwardly from its normal article 20 discharging position shown in full lines in Figure 2 to the dotted line or article receiving position therein under the influence of the inward movement of the plunger 27 as will be presently 25 described. Said carriage, which includes the abutment 39, further comprises an elongated plate 40 slidably mounted in a trackway 41 supported upon the base 10. Adjacent the forward end of the plate 40 the same has a pin and 30 slot connection with one end of a lever 42 the other end of which is pivoted to the bottom of the casing at 43. The pivot of said lever also carries an arm 44 above the lever 42 and the free end of said arm projects into an opening 35 45 formed in the plunger 27 so that as the latter is operated the arm 44 and the lever 42 will be swung to move the carriage rearwardly from its discharging position to the dotted line position of Figure 2 when the plunger is depressed, and 40 to move said carriage forwardly from its receiving position when the plunger is restored to its normal position under the influence of the spring 28. Thus, as previously referred to, when the 45 plunger 27 is pushed inwardly the carriage with its abutment 39 reaches the dotted line position of Figure 2 and at this time the free end of the blade of the knife drops into said abutment while at the same time an intermediate portion of 50 the handle of said knife falls upon the roller 38. Then when the plunger is released the carriage moves forwardly to project the handle end of the knife through the discharge opening 12 where the intermediate portion of the handle rests upon a roller 46 while the inner end of 55 said handle rests upon the roller 38. The knife may then be lifted and withdrawn from the casing and the apparatus is then ready for another operation.

What is claimed is:

1. In a dispensing apparatus for knives and like articles, a hopper for said articles in which the same are maintained in a stack, supporting means for said articles arranged on opposite sides 65 of said stack and operable to release the lowermost article in said stack and to simultaneously engage the next lowermost article to prevent release thereof, a carriage for receiving the released article, and means connected to said supporting means and to said carriage to operate the same 70 to release an article and discharge the same.

2. In a dispensing apparatus for knives and like articles, a hopper for said articles in which the same are maintained in a stack, supporting means for said articles arranged on opposite sides 75

of said stack and operable to release the lowermost article in said stack and to simultaneously engage the next lowermost article to prevent release thereof, a carriage for receiving the released article, a plunger connected to said supporting means to operate the same, and a connection between said plunger and carriage to operate the latter to receive a released article when said supporting means is operated.

3. In a dispensing apparatus for knives and like articles, a hopper for said articles in which the same are maintained in a stack, supporting means for said articles engageable therewith from opposite sides thereof and operable to release the lowermost one in said stack and to engage opposite sides of the next lowermost article to prevent release thereof, a reciprocating carriage movable, during the release of an article, from an article discharging position to an article receiving position beneath said hopper, and then back to said discharging position, and means connected to said supporting means and carriage for operating the same.

4. In a dispensing apparatus for knives and like articles, a hopper for said articles in which the same are maintained in a stack, oscillatory members in cooperative relation to said stack and each having a supporting lug engaging the lowermost article in said stack to releasably support the same in the normal position of said member and further having a flange to engage and support the next lowermost article when said member is oscillated to release the first-named article, means to oscillate said members, a roller located below said supporting lugs for receiving a portion of a released article, a reciprocating carriage upon which another portion of said released article is received, and means connecting said carriage with the member oscillating means so as to be reciprocated thereby to receive and discharge a released article.

5. In a dispensing apparatus for knives and like articles, a hopper for said articles in which the same are maintained in a stack, oscillatory members in cooperative relation to said stack and each having a supporting lug engaging the lowermost article in said stack to releasably support the same in the normal position of said member and further having a flange to engage and support the next lowermost article when said member is oscillated to release the first-named article, two interconnected plungers for oscillating said members, a reciprocating carriage for receiving the released article, a lever joined to said carriage, and an arm operated by one of said plungers and connected to said lever so that the latter will be actuated by said plunger to reciprocate said carriage.

6. In a dispensing apparatus for knives and like articles, a casing having a discharge outlet, a hopper within said casing for receiving a stack of articles to be dispensed, oscillatory members disposed on opposite sides of said hopper and having means engaging the lowermost article in said stack to releasably support the same and further having means to engage the next lower-

most article to prevent its release when said members are oscillated to release the lowermost article, supporting means for a released article including a roller and a reciprocating carriage positioned beneath said article-engaging means, plungers operable to actuate said oscillatory members, and means connecting one of said plungers to said carriage to reciprocate the latter so as to discharge a released article over said roller and through said outlet.

7. In a dispensing apparatus for knives and like articles, a casing having a discharge outlet, a hopper within said casing for receiving a stack of articles to be dispensed, an article receptacle removably mounted upon said casing above said hopper, oscillatory members disposed on opposite sides of said hopper and having means engaging the lowermost article in said stack to releasably support the same and further having means to engage the next lowermost article to prevent its release when said members are oscillated to release the lowermost article, supporting means for a released article including a roller and a reciprocating carriage positioned beneath said article-engaging means, plungers operable to actuate said oscillatory members, and means connecting one of said plungers to said carriage to reciprocate the latter so as to discharge a released article over said roller and through said outlet.

8. In a dispensing apparatus for knives and like articles, a hopper in which said articles are stacked and from which the same are individually released, oscillatory members disposed on opposite sides of said stack and having supporting elements engaging the lowermost article in said stack, said members also having other supporting elements engageable with the next lowermost article in said stack when said members are oscillated to disengage the first-named supporting elements from said lowermost article to release the latter, means to oscillate said members, a movable carriage to receive the released article, and means to move said carriage, upon operation of said oscillatory members, from a discharging position to a receiving position and from thence to said discharging position.

9. In a dispensing apparatus for knives and like articles, a hopper in which said articles are stacked and from which the same are individually released, a carriage movable from a normal discharging position to a receiving position beneath said stack so as to directly receive a released article therefrom, oscillatory supporting members arranged on opposite sides of said stack, said members having elements to engage and support the lowermost article in said stack and other elements engageable with the next lowermost article when said members are oscillated to release said lowermost article, and means operable during the movement of said carriage to its receiving position to actuate said oscillatory members to release the lowermost article onto said carriage and support the next lowermost article above the same.

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