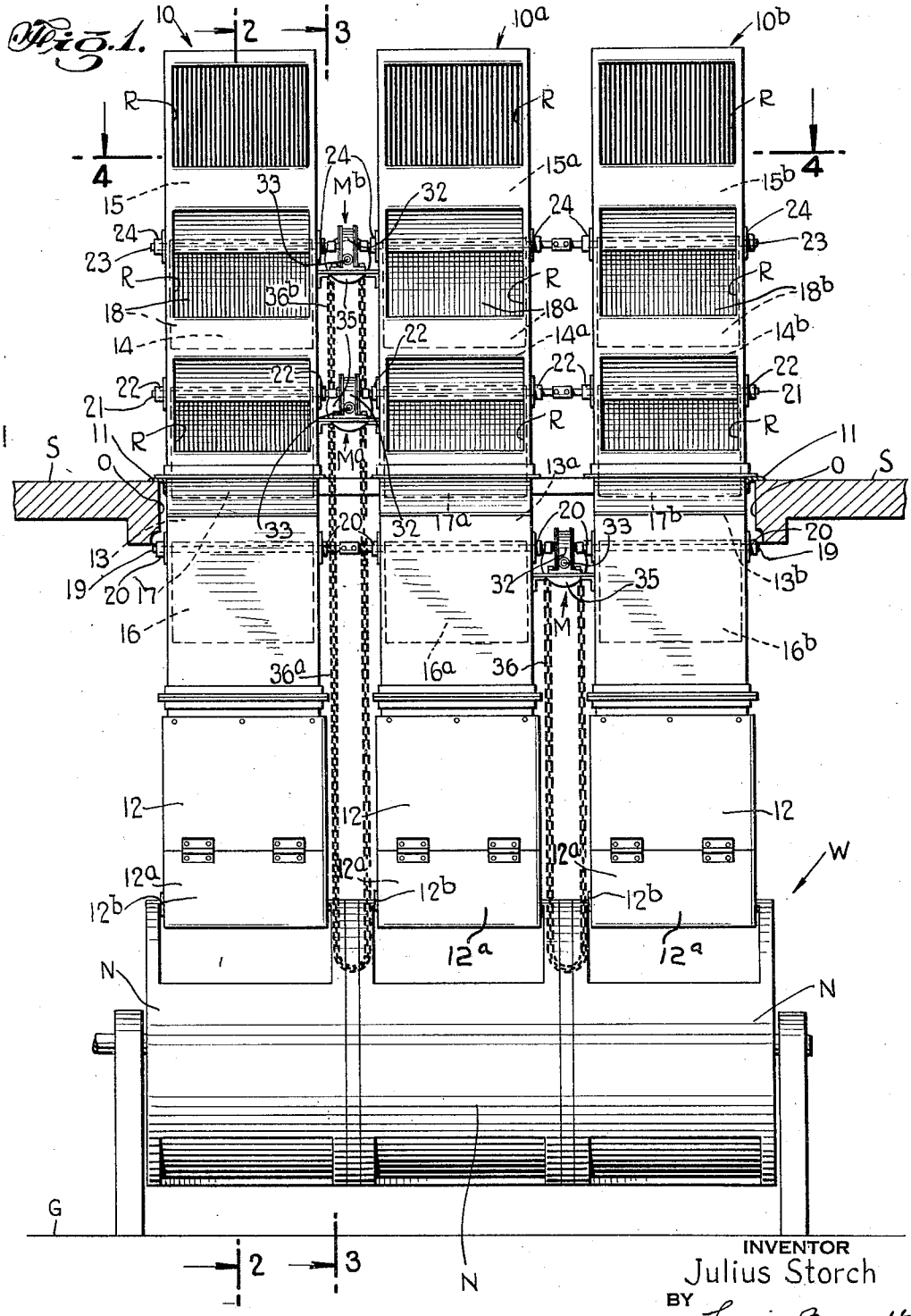
Nov. 8, 1932. J. STORCH 1,886,916

HOPPER CONSTRUCTION FOR LAUNDRIES, ETC

Filed Jan. 26, 1932 3 Sheets-Sheet 1

Fig. 1.



INVENTOR
Julius Storch
BY Louis Barnett
ATTORNEY

Nov. 8, 1932. J. STORCH 1,886,916

HOPPER CONSTRUCTION FOR LAUNDRIES, ETC

Filed Jan. 26, 1932 3 Sheets-Sheet 2

Fig. 2.

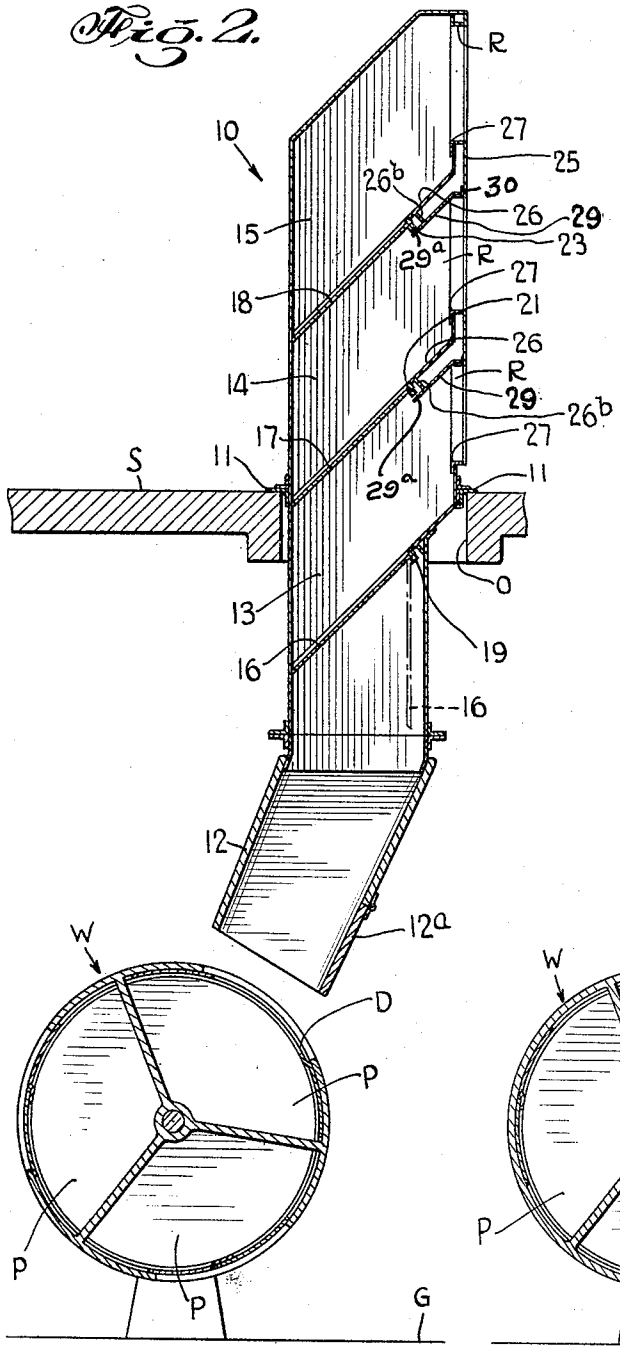
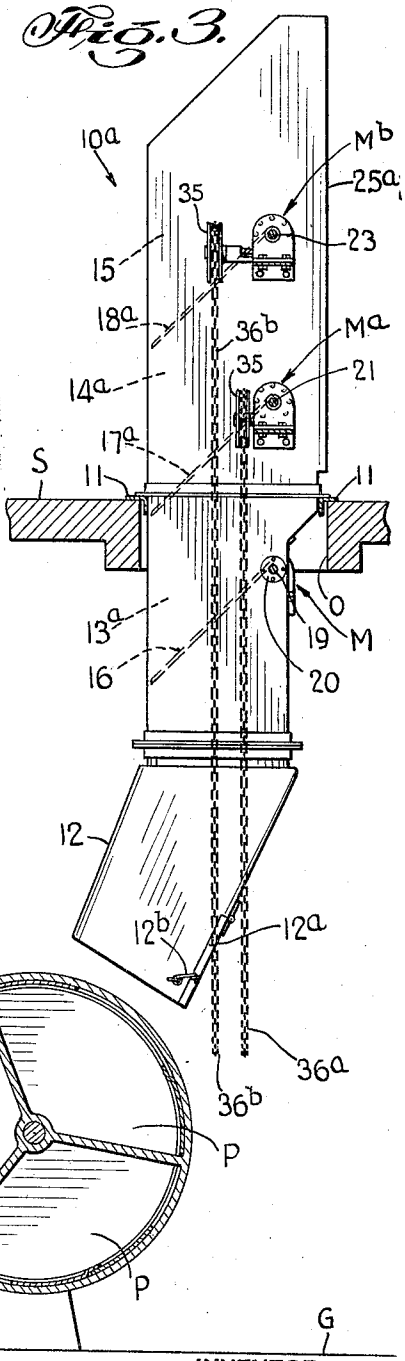


Fig. 3.



INVENTOR
Julius Storch
BY Louis Barnett
ATTORNEY

Nov. 8, 1932. J. STORCH 1,886,916

HOPPER CONSTRUCTION FOR LAUNDRIES, ETC

Filed Jan. 26, 1932 3 Sheets-Sheet 3

Fig. 4.

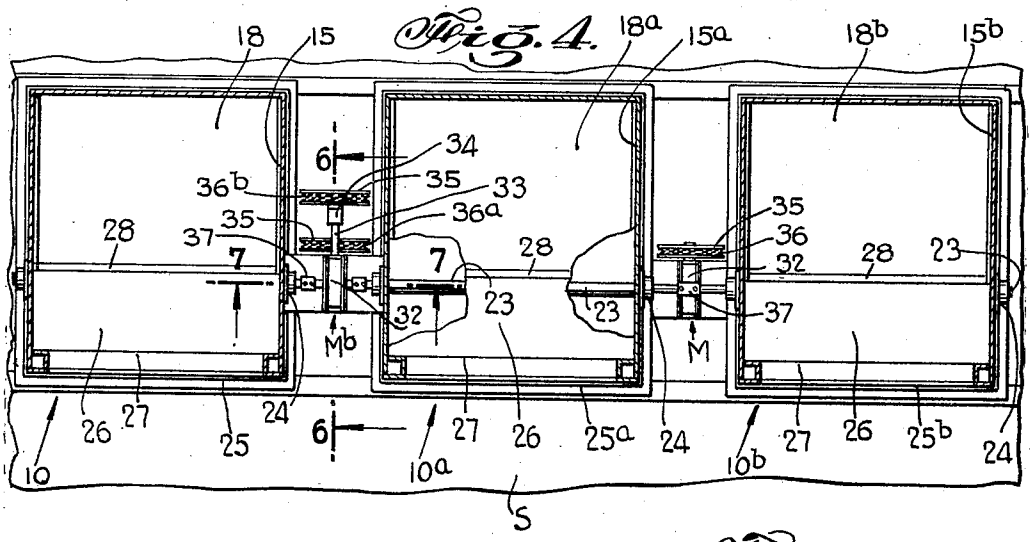


Fig. 5.

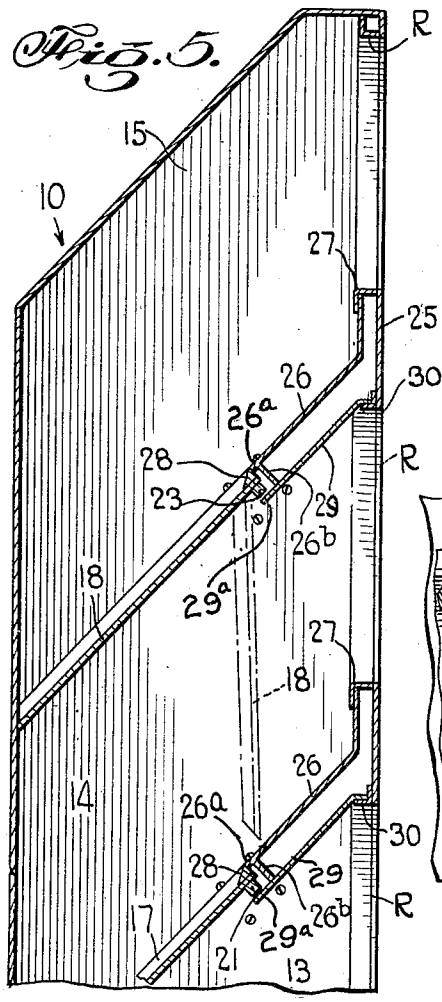
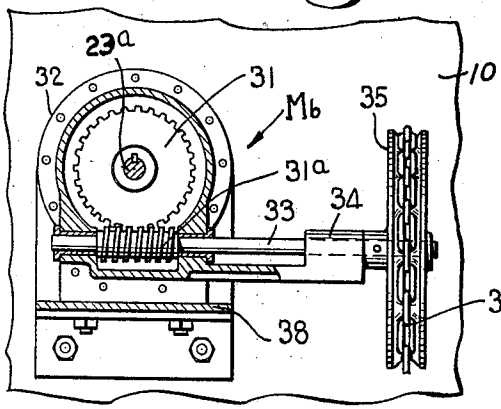


Fig. 6.



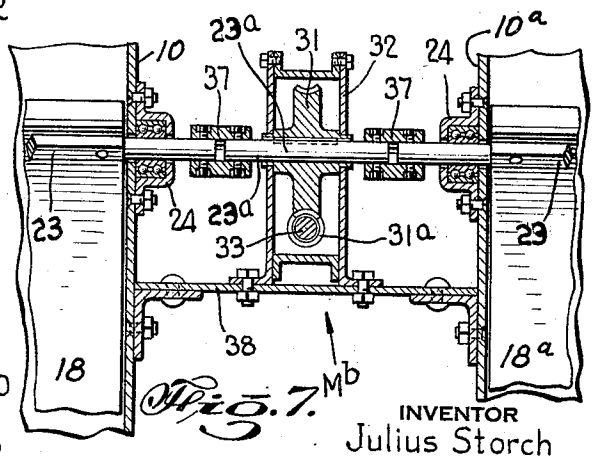


Fig. 7.

INVENTOR
Julius Storch
BY
Louis Barnett
ATTORNEY

Patented Nov. 8, 1932

1,886,916

UNITED STATES PATENT OFFICE

JULIUS STORCH, OF NEW YORK, N. Y.

HOPPER CONSTRUCTION FOR LAUNDRIES, ETC.

Application filed January 26, 1932. Serial No. 588,920.

This invention relates to laundry equipment and more particularly is directed to improvements in hopper constructions and dumping means for feeding or charging multi-pocket washing machines with loads of clothes to be cleansed.

Among the objects of the invention is to generally improve laundry equipment of the character described by providing an improved hopper construction and load dumping means which shall comprise few and simple parts, which shall form a compact, quick and easily operated device for charging a multi-pocket washing machine, and which shall be cheap to install, and practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements and arrangement of parts which will be exemplified in the construction hereinafter described and of which the scope of application will be indicated in the following claims.

In the accompanying drawings, in which is shown one of the various possible illustrative embodiments of this invention.

Fig. 1 is a front elevational view of a fragmentary portion of a laundry building showing the washing floor, overhead sorting floor and hoppers extending down from the latter to a multi-pocket washing machine supported on the former, said hoppers being provided with improved shutters or swingable compartment partitions and operating means therefor extending to the washing floor, said hopper and means being constructed to embody the invention.

Figs. 2, 3 and 4 are cross-sectional views taken on lines 2—2, 3—3 and 4—4, respectively, in Fig. 1.

Fig. 5 is a fragmentary enlarged cross-sectional view corresponding to the upper portion of the hopper shown in Fig. 2, and

Figs. 6 and 7 are fragmentary sectional views taken on lines 6—6 and 7—7, respectively, in Fig. 4.

An embodiment of the invention will now be described as applied to laundry equipment installed in a building in connection with a 9-pocket washing machine W of any conventional construction, said machine W being located on the washing or ground floor G, and a bank of three, vertically spaced, parallelly aligned hoppers 10, 10*a* and 10*b*, being carried by an overhead sorting floor S. Only a fragmentary portion of said ground floor G and the sorting floor S are shown in Figs. 1 to 3.

Each hopper may be extended vertically down through an opening O in the sorting floor S and is supported in any suitable manner as by means of angle members 11. The lower ends of the hoppers may each terminate in inclined chute portions 12 which are adapted to register with the doorways D of the washing machines which are rotatably mounted cylindrical bodies located above the floor G. Said machine W here shown, is seen to comprise three sections N, each formed with three sector-shaped pockets P, the latter being adapted to receive a charge or load of clothes (not shown) to be washed from the corresponding compartments provided in the hoppers 10, 10*a* and 10*b* at or above the sorting floor S. Thus a 9-pocket washing machine W having three sections N of three pockets each is provided with three hoppers 10, 10*a* and 10*b* which are substantially alike in construction, each hopper being adapted to feed charges or loads of clothes in the three pockets P of one of the sections N.

The hoppers 10, 10*a* and 10*b* have three compartments each, compartments 13, 14 and 15 in hopper 10, compartments 13*a*, 14*a* and 15*a* in hopper 10*a*, and compartments 13*b* 14*b* and 15*b* for hopper 10*b*, as shown in Figs. 1 to 4, inclusive. Said compartments 13, 14 and 15; 13*a*, 14*a* and 15*a*; and 13*b*, 14*b* and 15*b* are partitioned off in their respective hoppers 10, 10*a* and 10*b* by suitable load dumping means comprising swingable drop shutters or trap doors 16, 17 and 18; 16*a*, 17*a* and 18*a*; and 16*b*, 17*b* and 18*b*, respectively. The shutters 16, 16*a* and 16*b* may each be secured to swing with the horizontally extending shaft 19 from an inclined position to the horizontal plane shown in full lines in Figs. 2 and 5 to a vertical position

shown in dotted lines, said shaft being journaled in suitable bearings such for example as ball bearings 20. Similarly, the shutters 17, 17*a* and 17*b* are mounted to swing with the horizontally extending shaft 21 which is journaled in ball bearings 22 and the swingable drop shutters 18, 18*a* and 18*b* are mounted to swing with the horizontally extending shaft 23 journaled in ball bearings 24. The bearings 20, 22 and 24 are preferably mounted on the outer side walls of the casing of the hoppers to be readily accessible and away from possible contact with the clothes to eliminate accidental oil stains, and are located to retain the shafts in spaced parallel alignment with the rear sides 25, 25*a* and 25*b* of the casings of the hopper 10, 10*a* and 10*b*.

Since the drop shutters are disposed in the hoppers at an inclined angle with a horizontal plane, the pivoting axes therefor are preferably provided at the upper ends of the shutters within the hopper and adjacent the rear casing sides 25, 25*a* and 25*b*.

Secured to the rear side of each casing and extending in alignment with each shutter when the latter is in closed position, there is provided a fixed short ramp or slideway 26, said slideway being secured to the rear side in any suitable manner as by means of an angle bar 27. The free end 26*a* of each ramp is adapted to meet the filet or filler strip 28 on the upper end of each shutter so as to provide a perfectly smooth sliding surface on which to place the loads or charges of clothes prior to dumping into the machine. In order to brace the ramp 26, a plate member 29 which is rigidly secured to the rear of the hopper casing by a suitable angle iron 30 may be provided. Said plate member 29 engages with the spaced portion 26*b* extending from the ramp end 26*a*, said member 29 also being extended as at 29*a* for shielding the shafts 19, 21 and 23.

The upper drop shutters 18, 18*a* and 18*b* are operated in unison, and to this end a suitable turning mechanism is provided, as for example, a worm drive M*b*, said drive as seen from Figs. 6 and 7 comprising a worm wheel 31 meshing with a worm 31*a*. Said worm drive may be housed in a casing 32, the shaft 33 of the worm 31*a* being extended through the casing 32 and supported in an overhanging bearing 34. Said shaft 33 terminates beyond said bearing 34 in a pulley 35 which is operated by a hand chain 36*b*. The latter hangs down through the sorting floor S and is looped above the ground floor G adjacent to the washing machine W. The worm wheel 31 is fixedly secured or keyed to a short section of the shaft 23*a*, the latter being coupled to the oppositely extending aligned portions of the shaft 23 by suitable couplings 37. The worm drive casing 32 may be rigidly supported by suitable structure members 38 for retaining the alignment of sections of shaft 23*a* with the shaft portion 23, said members being riveted or bolted between the sides of the adjacent hoppers as shown in Figs. 1, 4 and 7. In a similar manner, the shafts 21 and 19 are each provided with similar turning mechanisms M*a* and M controlled by hand chains 36*a* and 36, respectively. These turning mechanisms preferably are distributed for convenient manipulation and as here shown, chains 36*a* and 36 are positioned between hoppers 10 and 10*a*, and the chain 36 is located between hoppers 10*a* and 10*b*.

The operation of the improved installation will now be apparent. After the clothes to be washed are bundled on the sorting floor S, placed through the openings R on the rear sides 25, 25*a* and 25*b* of the hoppers and distributed in the nine compartments, the doorway D of one of the pockets P in each of the machine sections N is brought in register with the chute portions 12, that is, one set of these pockets are positioned to receive loads of clothes for the three hoppers 10, 10*a* and 10*b*. The lower shutters 16, 16*a* and 16*b* are opened by manipulating the hand chain 36 which causes the loads in the lower compartments 13, 13*a* and 13*b* to drop down the hoppers 10, 10*a* and 10*b* through the chute portions 12 and into three machine pockets P. The washing machine W is now turned so that the doors D of a second set of pockets align with the chute portions 12 and the middle shutters 17, 17*a* and 17*b* are opened by operating the chain 36*a* for dumping the clothes bundles from compartments 14, 14*a* and 14*b* into said second set of machine pockets P. The washing machine W is now turned so that the third or last set of pockets P are aligned with the chute portions 12 and the chain 36*b* is operated for swinging the shutters 18, 18*a* and 18*b* open to permit the clothes bundles in compartments 15, 15*a* and 15*b* to drop down the hoppers 10, 10*a* and 10*b* through the chute portions 12 and into the third set of machine pockets P. The chains 36, 36*a* and 36*b* can now be operated for raising all the shutters and the hoppers compartments are then ready to receive other loads of clothes for repeating the charging of the machine pockets.

The chute portion 12 preferably may be made with a hinged wall 12*a* which is secured by a suitable latch 12*b* to permit the ready release of loads of clothes that may accidentally jam in the chute portions 12, such release being accomplished by simply opening the latch 12*b* and swinging the hinged wall 12*a* outwardly as is readily understood from Figs. 2 and 3.

It is clear from the above description and drawings that the washing machine W can be readily loaded from the ground floor G by the operators of said machine independent of the workers of the sorting floor. Much

time and labor is thus saved and greater convenience in operation than heretofore is made possible, since three machine pockets may be filled simultaneously.

It will thus be seen that there is provided a device in which the several objects of this invention are achieved and which is well adapted to meet the conditions of practical use.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiments above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawings is to be interpreted as illustrative and not in a limiting sense.

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

1. In a hopper construction of the character described, drop shutters forming separate compartments in said hopper, a shaft supporting each shutter for swinging movement extending through the hopper, said shaft being spaced from one side of the hopper, a ramp extending from the said hopper side in a plane above said shaft and aligning with the shutter when in closed position, and means extending below said ramp for shielding the shaft against accidental contact with clothes placed in the adjoining compartment.

2. In a hopper construction of the character described, drop shutters forming separate compartments in said hopper, a shaft supporting each shutter for swinging movement extending through the hopper, said shaft being spaced from one side of the hopper, means extending from the said side of the hopper and cooperative with the shutter when in closed position to form the bottom of a compartment, and means extending from the said hopper side below said first named means for shielding said shaft against accidental contact with clothes placed in the adjoining compartment.

3. The device as set forth in claim 2, wherein the last named means is constituted in a metal member which has its inner edge extended beyond the adjacent edge of the said ramp to further the shielding effect thereof.

In testimony whereof I affix my signature.

JULIUS STORCH.