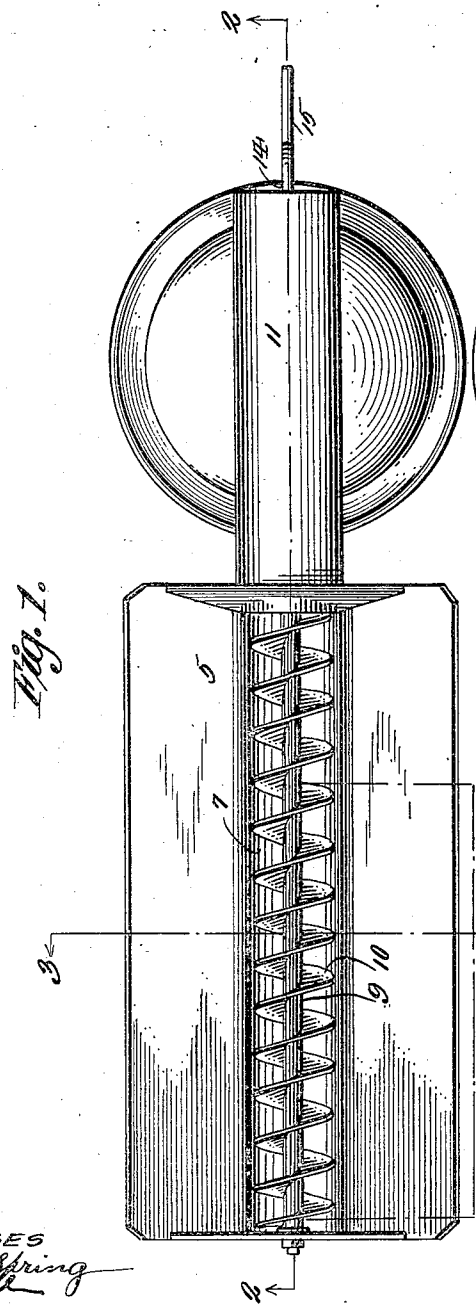
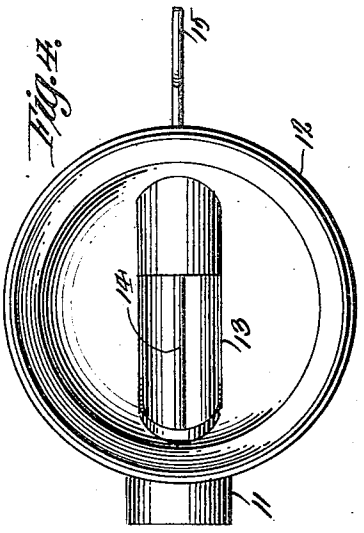
May 1, 1928. 1,667,952

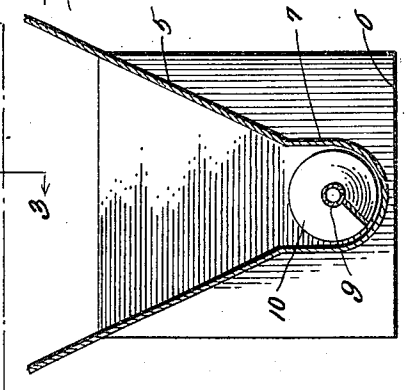
A. SCHULZE

DUSTLESS ASH-REMOVER

Filed July 2, 1926 3 Sheets-Sheet 1







WITNESSES

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DUSTLESS ASH REMOVER

Filed July 2, 1926

3 Sheets-Sheet 2

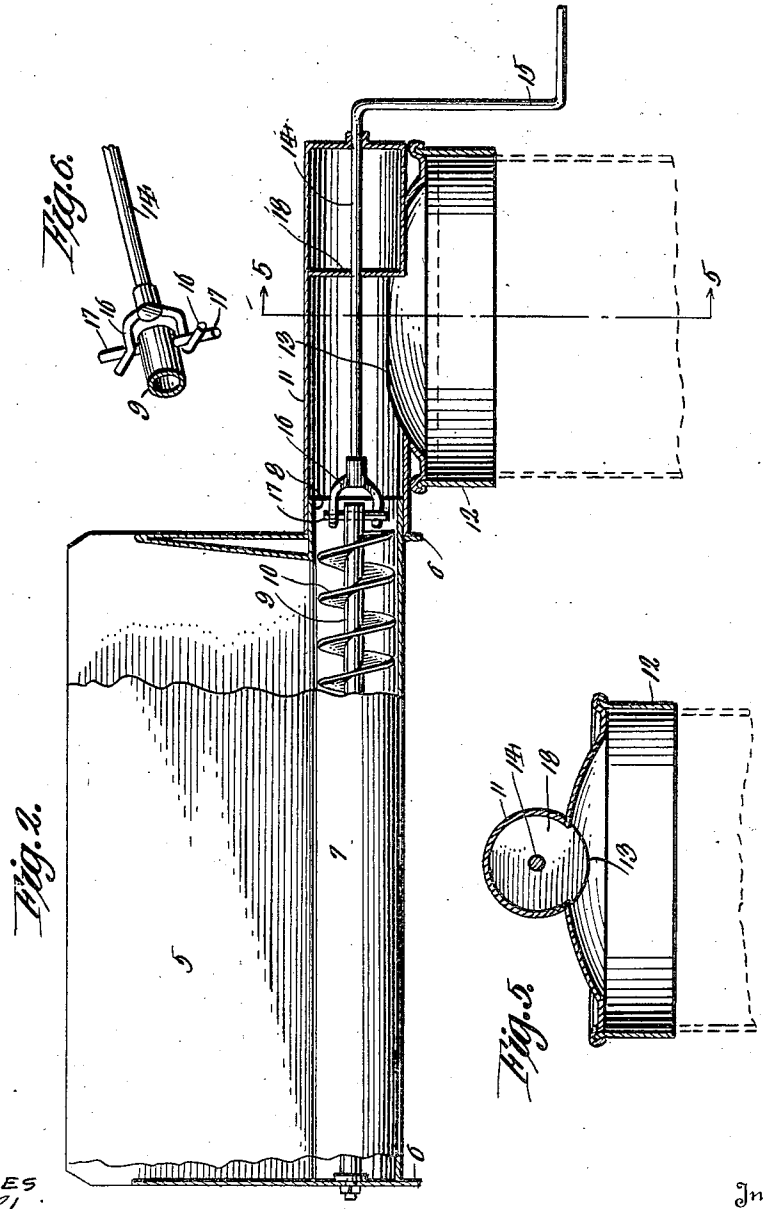


Fig. 2.

Fig. 6.

Fig. 5.

WITNESSES

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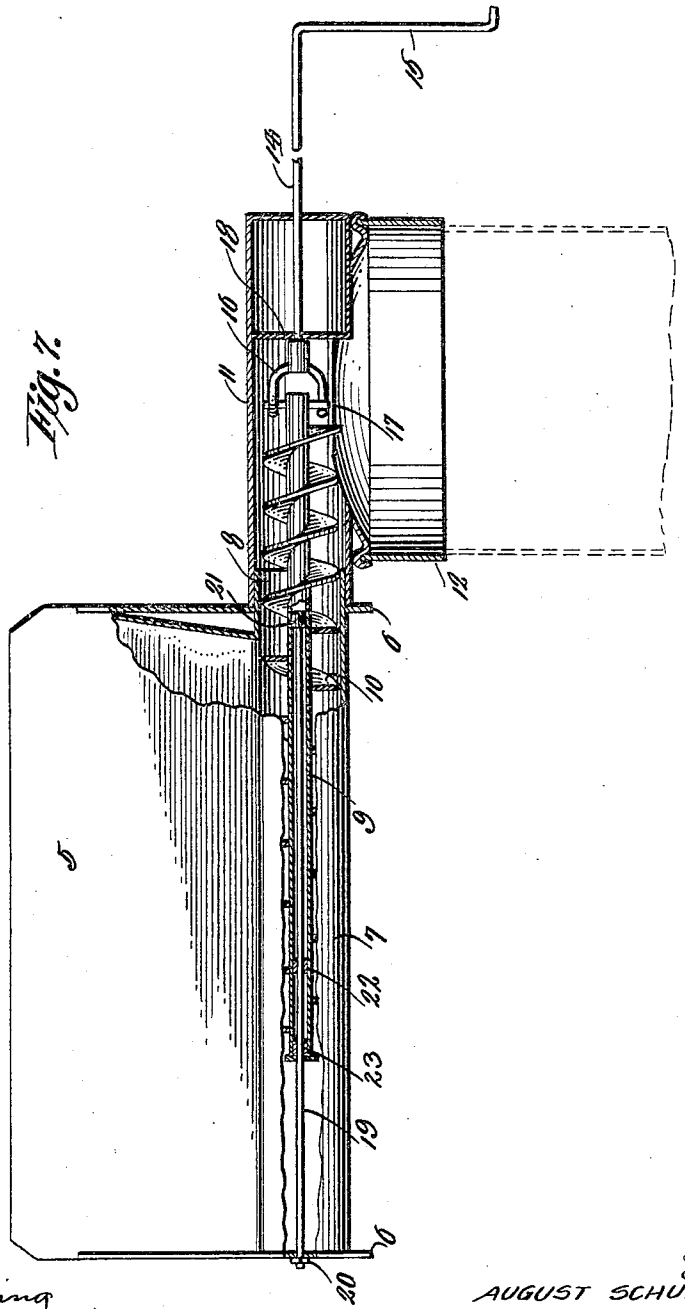
May 1, 1928. 1,667,952

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DUSTLESS ASH REMOVER

Filed July 2. 1926 3 Sheets-Sheet 3

Fig. 1.



WITNESSES

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UNITED STATES PATENT OFFICE.

AUGUST SCHULZE, OF MIDWEST, WYOMING.

DUSTLESS ASH REMOVER.

Application filed July 2, 1926. Serial No. 120,237.

This invention relates to certain new and useful improvements in ash removers, and has more particular reference to an improved device for facilitating removal of ashes from stoves and furnaces without danger of spilling the ashes upon the floor or liberating dust.

The primary object of the present invention is to provide an ash remover of the above kind which is extremely simple and durable in construction as well as efficient in operation, and which may be readily placed into practical use.

A further object is to provide an ash remover of the above kind embodying an ash pan or ash receiving and discharging unit adapted to be readily placed within the ash pit of stoves and furnaces so that the ash pit door may be closed when removal of the ashes is not taking place, and an outlet or discharge tube adapted for removable association with the outlet of the ash receiving and discharging unit and having an ash can lid or cover rigidly attached to the underside thereof, whereby the ashes may be conveyed from the ash receiving and discharging unit to the ash can without danger of spilling the ashes upon the floor or liberating dust.

A still further object is to provide an ash receiving and discharging unit embodying a screw or spiral conveyor for effecting discharge of the ashes, and an operating shaft carried by the delivery or discharge tube, in combination with means to automatically operatively connect the operating shaft with the conveyor shaft when the delivery tube is engaged with the outlet of the ash receiving and discharging unit, whereby the conveyor may be actuated for removal of the ashes.

Other objects will become apparent as the nature of the invention is better understood, and the same consists in the novel form, combination and arrangement of parts hereinafter more fully described, shown in the accompanying drawings and claimed.

In the drawings, wherein like reference characters indicate corresponding parts throughout the several views:—

Figure 1 is a top plan view of an ash remover constructed in accordance with the present invention;

Figure 2 is a view thereof partly in side elevation and partly in central longitudinal section;

Figure 3 is a transverse vertical sectional view taken upon line 3—3 of Figure 1;

Figure 4 is a bottom plan view of the delivery or discharge tube and the attached ash can lid, together with the associated conveyor actuating or operating shaft;

Figure 5 is a transverse vertical sectional view taken substantially upon line 5—5 of Figure 2;

Figure 6 is an enlarged fragmentary perspective view illustrating the means for effecting clutching or operative connection between the adjacent ends of the actuating shaft and the conveyor shaft, and

Figure 7 is a view somewhat similar to Figure 2, with the conveyor slid partly from the hopper into the delivery tube to effect cleaning of ashes from the latter.

Referring more in detail to the drawings, the present invention embodies a hopper 5 preferably constructed of sheet metal and adapted to be inserted through the ash pit door of a stove or furnace so as to be positioned within the ash pit and beneath the stove or furnace grate to receive the ashes and to thereby take the place of the usual ash pan. In order that the hopper may be properly supported, the ends thereof are of rectangular form so as to have relatively long flat bottom supporting edges 6 adapted to rest upon the ash pit floor. The hopper 5 has downwardly converging sides which merge with a centrally and longitudinally disposed trough 7 forming the bottom of the hopper. This trough is closed at its rear end by the rear end wall of the hopper, but is open at its forward end in communication with a relatively short nipple or outlet pipe 8 rigid with and projecting outwardly from the outer end of the hopper as shown in Figure 2. The outlet nipple 8 will be positioned within the ash pit so that the usual ash pit door can be closed when the removal of the ashes is not taking place, and fitting in the trough 7 as well as suitably rotatably supported in the latter to extend from end to end of the same is a helical or spiral conveyor embodying a shaft 9 disposed axially of the trough 7 and having a spiral rib of uniform width therein as indicated at 10. The hopper and conveyor construction described above constitute an ash receiving and discharging unit, and the invention embraces a second unit including an ash delivery or discharge tube 11 having an open end adapted to be slidably telescoped or fitted onto

the outlet nipple 8, and closed at its other end, a conventional ash can lid or cover 12, being fixed to the under side of the discharge tube 11 and having an opening in the top thereof in register with a bottom discharge opening provided in the delivery tube 11 as generally indicated at 13. The openings at 13 in the ash can cover 12 and the delivery tube 11 are extended as near as possible to the open end of the tube 11 so that as the ashes are discharged from the outlet nipple 8 they will readily find their way through the openings at 13 into the ash can. The discharge tube 11 has an actuating shaft 14 journaled axially therein and projecting beyond or through the outer end of the same where it is equipped with a suitable handle or crank 15 for facilitating manual turning of the shaft 14. Means is provided to automatically clutch or operatively connect the inner end of the actuating shaft 14 with the adjacent outer end of the conveyor shaft 9 upon engagement of the delivery tube 11 with the outlet nipple 8, and this means preferably embodies opposed angular arms 16 rigid with the shaft 14 and engageable with a transverse pin 17 extending through the shaft 9.

The discharge tube 11 is closed at the outer end of the opening at 13 by means of a transverse partition or bearing plate 18 in which the shaft 14 is journaled.

The hopper 5 and associated parts are disposed within the ash pit and the ash pit door closed under normal conditions. However, when it is desired to remove ashes which have collected in the hopper 5, the ash pit door is opened and the delivery tube 11 is fitted onto the outlet nipple 8, whereupon the crank shaft 14 is turned in a clockwise direction so as to cause the arms 16 to engage the pin 17 and thereby transmit the rotation of shaft 14 to the conveyor shaft. Upon rotation of the conveyor the ashes in the hopper are discharged from the latter and conveyed to the ash can upon which the lid or cover 12 is placed. It will thus be seen that the removal of the ashes may be effected from time to time as found necessary without danger of spilling the same upon the floor or of liberating the dust in the room or building in which the stove or furnace is positioned. When the hopper 5 has been fully emptied of the ashes, the delivery tube 11 is removed from the outlet nipple 8 and may be left upon the ash can or stored away when not in use. The ash pit door of the stove or furnace may then be conveniently closed until the next ash removing operation takes place.

It will be noted that the conveyor 9, 10, when normally positioned as in Figures 1 and 2, terminates at its outer end within the trough 7 and a distance from the openings 13 in the delivery tube 11 and cover 12. In view of this fact it is desirable to provide some means for finally cleaning out of the delivery tube 11, such ashes as may remain therein between the outer end of the conveyor and the openings 13 after the hopper 5 has been completely emptied. For this purpose, the conveyor is slidably mounted in the trough 7 so as to be capable of being slid outwardly into the delivery tube 11 for scraping the remaining ashes from said delivery tube into the ash can through the openings at 13. In carrying out this construction a supporting rod 19 is supported axially or centrally of the trough 7, and the shaft 9 is of hollow form and rotatably and slidably disposed on the rod 19, one end of the rod 19 being fixed to the rear wall of the hopper 5 as indicated at 20. Further, the operating shaft 14 is slidable through the outer end of the delivery tube 11 and the bearing plate 18 so that when the shaft 14 is pulled outwardly, the conveyor may be slid outwardly to the position indicated in Figure 7, by reason of the nature of the clutching means 16, 17, described above. This outward sliding of the conveyor naturally results in scraping ashes which remain in the tube 11 out of the latter for ultimately finding their way into the ash can through the openings at 13. In using the present apparatus this scraping of the ashes from the delivery tube 11 is effected after the hopper 5 has been completely emptied but before the delivery tube 11 is disconnected from the hopper, and the conveyor is then slid back to its normal position of Figure 2 so that the delivery tube 11 may be disconnected from the hopper without any danger of dust or ashes falling out of the delivery tube 11 onto the floor. As shown, the rod 19 is of considerably smaller diameter than the shaft 9 and has secured thereto bearings 21 and 22 for rotatably and slidably supporting the shaft 9. The inner end of the shaft 9 has secured thereto a bearing or stop member 23 for abutting the bearing 22 when the conveyor is pulled outward for preventing the entire displacement of the conveyor off of the rod 19 in case the conveyor may be accidentally pulled outwardly beyond a predetermined point when the delivery tube 11 is not connected to the device. The stop member 23 may consist of a plug fixed in the shaft 9 and having the rod 19 slidably projecting therethrough as shown.

From the foregoing description it is believed that the construction and operation as well as the advantages of the present invention will be readily understood and appreciated by those skilled in the art.

Minor changes may be made without departing from the spirit and scope of the invention as claimed.

What I claim as new is:—

An ash remover embodying a hopper

adapted for position beneath the grate of a stove, and provided with a longitudinal trough shaped bottom closed at one end of the hopper and opening through the other end of the same in the form of a projecting outlet nipple, a helical conveyor rotatably mounted in the trough shaped bottom of the hopper and extending from one end to the other end of the same, a delivery tube closed at one end and having the other end open and adapted for telescopic engagement with the outlet nipple, an ash receptacle rigidly carried by the bottom of the delivery tube and having an opening in the top thereof communicating with the delivery tube through the bottom of the latter, means to facilitate manual rotation of the conveyor, said conveyor being slidably mounted in the bottom of the hopper for being shifted forwardly into the delivery tube, whereby ashes may be finally scraped from the delivery tube through the opening of the ash receptacle lid, and said rotating means for the conveyor constituting means for facilitating the forward sliding of the conveyor.

In testimony whereof I affix my signature.

AUGUST SCHULZE.