R. W. WILSON.

ELEVATOR STOP.

APPLICATION FILED FEB. 25, 1911.

1,016,054.

Patented Jan. 30, 1912.

2 SHEETS—SHEET 1.

Fig. 1.

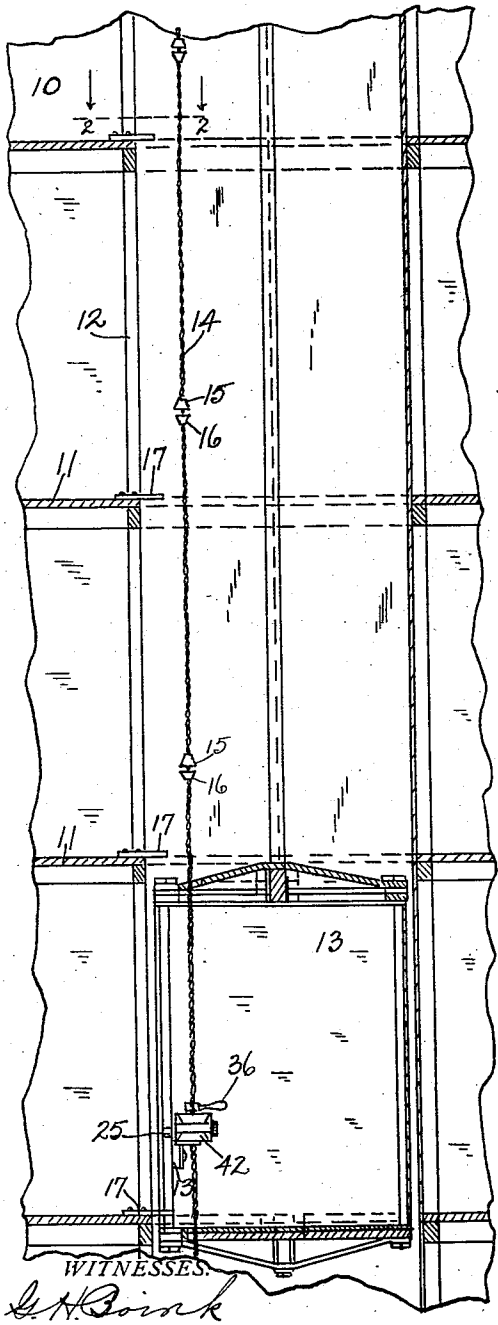


Fig. 2.

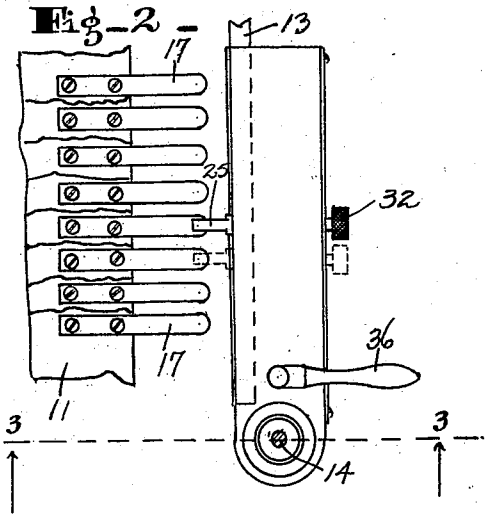


Fig. 3.

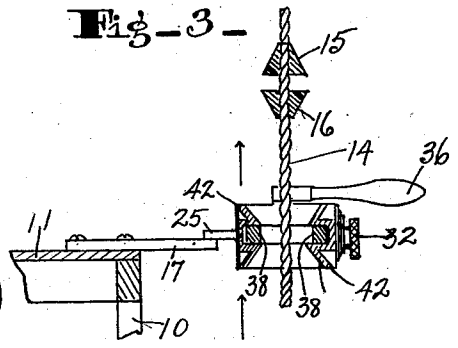
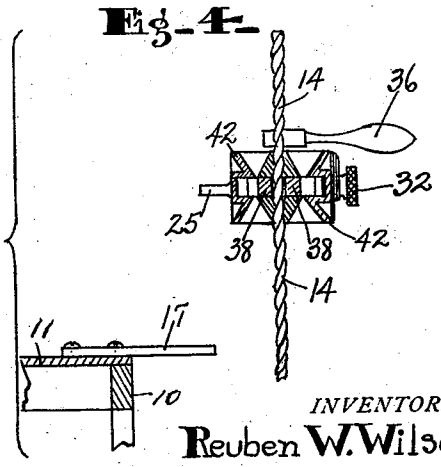


Fig. 4.



WITNESSES.

G. H. Boink

O. M. McLaughlin

INVENTOR.

Reuben W. Wilson.

BY

V. H. Lockwood

ATTORNEY.

R. W. WILSON.

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2 SHEETS—SHEET 2.

Fig. 5.

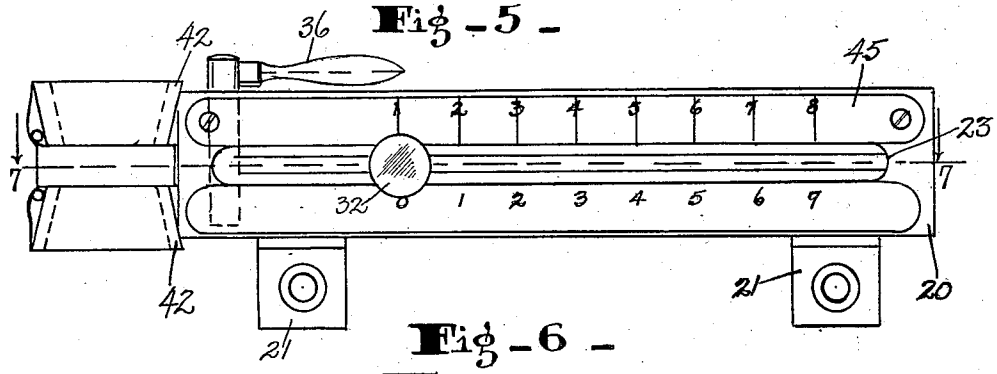


Fig. 6.

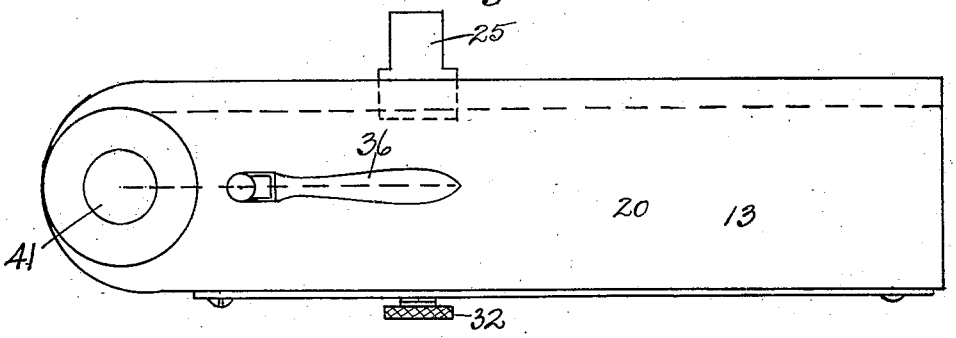


Fig. 7.

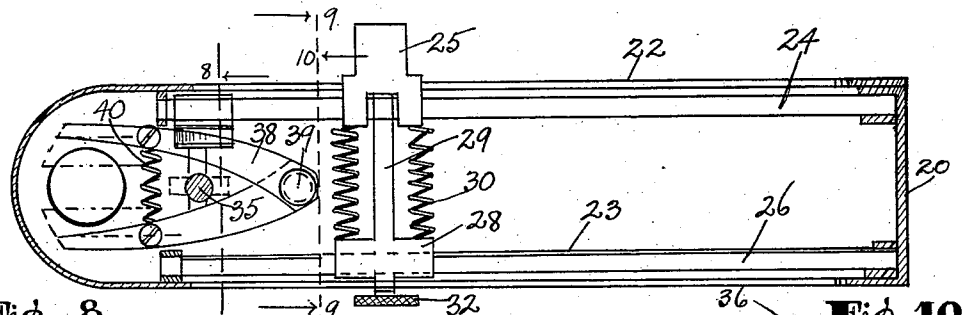


Fig. 8.

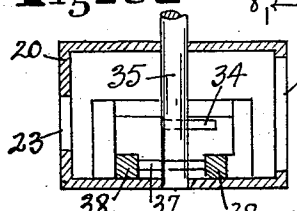


Fig. 9.

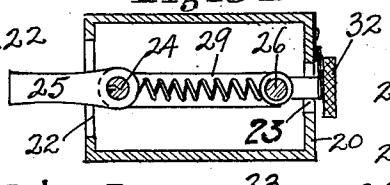


Fig. 10.

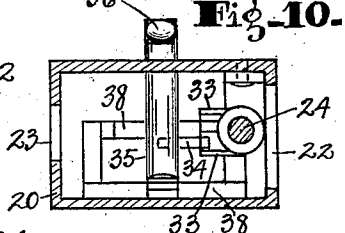
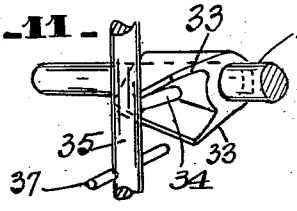


Fig. 11.



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ATTORNEY.

UNITED STATES PATENT OFFICE.

REUBEN W. WILSON, OF INDIANAPOLIS, INDIANA.

ELEVATOR-STOP.

1,016,054. Specification of Letters Patent. Patented Jan. 30, 1912.

Application filed February 25, 1911. Serial No. 610,852.

To all whom it may concern:

Be it known that I, REUBEN W. WILSON, a citizen of the United States, and a resident of Indianapolis, county of Marion, and State of Indiana, have invented a certain useful Elevator-Stop; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings.

The object of this invention is to provide improved means for the automatic stopping of an elevator car at any desired floor of a building in which the elevator operates.

The nature of the invention will be understood from the accompanying drawings and the following description and claims.

In the drawings Figure 1 is a vertical section through a portion of a building or an elevator shaft and the elevator car therein. Fig. 2 is a horizontal section on the line 2—2, showing the stop-fingers on eight floors of the building, parts being broken away. Fig. 3 is a vertical section on the line 3—3 of Fig. 2. Fig. 4 is similar to the right-hand portion of Fig. 3, showing the position of parts operated by the stop blocks on the cable. Fig. 5 is an inside elevation of the adjustable means attached to the car for causing it to stop at any particular floor. Fig. 6 is a plan view of what appears in Fig. 5. Fig. 7 is a horizontal section on the line 7—7 of Fig. 5. Fig. 8 is a vertical transverse section on the line 8—8 of Fig. 7. Fig. 9 is a similar section on the line 9—9 of Fig. 7. Fig. 10 is a similar section on the line 10—10 of Fig. 7. Fig. 11 is a perspective view of a part of the stopping means on the car.

In the drawings herein 10 represents the building and 11 the floors thereof and 12 an elevator shaft.

13 is an elevator car with the lifting cables omitted for the sake of clearness. The cable 14 is the one used to start the power mechanism for lifting the car and regulating its movement. It has on it, just above each floor, a pair of stop blocks 15 and 16 secured and tapering away from each other with their wide ends spaced apart some distance. On each floor of the building a stop finger 17 projects inwardly into the shaft for the purpose of engaging and actuating adjustable means on the car for regulating its stoppage. These fingers 17 are placed in a certain horizontal relation to each other in the series. While there is only one finger or bar 17 on each floor, the various bars or fingers on all the floors when viewed from above or below, are offset from each other successively from the bottom to the top of the building, as indicated in Fig. 2.

The mechanism shown in Figs. 5 to 11 is secured to the car at the right hand side of the door and at a convenient height for the operator. It consists of a frame 20 secured in place by the brackets 21. This frame is rectangular in cross section and hollow and has a horizontal slot 22 in the outer side and a horizontal slot 23 in the inner side. Slot 22 is wider than slot 23, as shown in Fig. 8. Inside of said frame there is a shaft 24 opposite the slot 22 on which a downwardly projecting arm 25 is slidably splined and projects through the slot 22. Opposite the shaft 24 there is a rod 26 and that rod is opposite slot 23. There is a frame 28 slidable on the rod 26 with the bar 29 running over to and slidable on the shaft 24. A pair of spiral springs 30 extend from the part 28 to the inner portion of the arm 25 and pulling on said inner portion of the arm 25 so as to bend or turn it and the shaft 24 to normal position, as shown in Figs. 7 and 9, after they have been actuated or oscillated between all the fingers 17. A finger piece 32 is secured to the frame 28 and projects through the slot 23 and thereby the frame 28 and the arm 25 are slipped longitudinally on the shaft 24, and the rod 26 into position to engage any desired finger 17.

The shaft 24 has on its left end, as shown in Figs. 7 and 11, a pair of inclined plates 33 extending in position to engage the horizontal pin 34 which lies between said two plates. The pin 34 extends from the vertical shaft 35 that is mounted in the left end of the frame 20 and has a hand lever 36 on the upper end of it, (see Figs. 5 and 6) for turning it by hand, when that is desired. The shaft 35 has a pair of oppositely extending pins 37 on its lower end in position to engage a pair of stop arms 38, pivoted on the pin 39 in the frame, see Fig. 7. These stop arms, in plan view, are slightly curved and are automatically drawn together by the spring 40 actuating them, and they are separated from each other by the pins 37 on the shaft 35, as shown in Fig. 8. At the left hand end of the frame 20 there is a vertical cable hole 41 through a frame 42, having upper and lower oppositely flaring portions with their contracted

ends spaced apart, as shown in Figs. 4 and 5, to leave horizontal openings for the ends of the stop arms 38. The stop arms 38 extend on opposite sides of the hole 41, and, therefore, of the cable 14, and when they are released and drawn together by the spring as the car is moving in the direction of the stop blocks 15 and 16, they will engage the cable 14 and ride over one of the stop-blocks 15 and 16 and be drawn by the spring into the space between the two stop-blocks. Then the further movement of the car will cause a corresponding movement of the cable 14, which will stop the actuating machinery.

Therefore, the operation of the device is as follows: Suppose a person is at the ground floor and wishes to stop at the fourth floor, he will slide the frame 28 and arm 25 laterally into the position to engage the fourth floor finger 17, as shown in Fig. 2, and will turn the hand lever 36 so as to turn the shaft 35 into the position shown in Fig. 7 and spread the arms 38 to prevent them engaging the cable. The operator then pulls the cable and starts the machinery and goes off and leaves the elevator to operate alone. The elevator car goes up to the fourth floor and there the finger 17 engages the arm 25 and turns it downward from the position shown in Figs. 7 and 9 and this causes the inclined plate 33 to turn the shaft 35 so the pins 37 will not hold the arms 38 apart; the spring 40 will then throw the arms against the cable and as the car moves farther up said arms 38 will slip in between the two stop-blocks 15 and 16, as shown in Fig. 4, and then as the car moves farther up the cable 14 will be moved and stop the actuating machinery. In going down, the opposite takes place. Suppose a person is at the fourth floor and wishes to stop at the second floor, he will slide the frame 28 and arm 25 laterally into position to engage the finger 17, as shown by dotted lines in Fig. 2, and will turn the hand lever 36 so as to turn the shaft 35 into the position shown in Fig. 7, and spread the arms 38 to prevent them engaging the cable. The operator then pulls up on the cable and starts the machine and goes away to let the elevator car drop alone. The elevator car drops down to the third floor and there the finger 17 engages the arm 25, turns it upward from the position shown in Figs. 7 and 9, and this causes the inclined plate 33 to turn the shaft 35 so that the pins 37 will not hold the arms 38 apart. The spring 40 will then throw the arms against the cable and as the car moves farther down, said arms 38 will slip in between the two stop blocks 15 and 16, as shown in Fig. 4, and then as the car moves farther down, the cable will be moved downwardly and stop the actuating machine when the car reaches the second floor. Therefore, the car can be caused to stop at any floor, going up or down, without any operator being on the car. On the frame 20 there is a plate 45 graduated and numbered to indicate the position for setting the sliding frame 28 in order to stop the car at the desired floor. There are two sets of index numbers on said frame 20, the upper set being used in setting the stop mechanism to stop the car when ascending and the lower set being used to cause the stop of the car when descending.

I claim as my invention:

1. The combination of an elevator shaft, fingers projecting into the shaft near the different floors of the building, there being one finger for each floor and the various fingers being successively offset with relation to each other, an elevator car, a cable extending through said shaft for starting and stopping the elevator car, stop blocks on said cable near each floor, a frame secured to the elevator car with an opening at one end through which said cable extends and horizontal slots through the opposite sides of said frame, a shaft in said frame opposite the outer slot, an arm slidably splined on said shaft and projecting through the slot in position to engage any one of said fingers, according to the adjustment of the arm, a frame for laterally adjusting said arm provided with means extending through the other one of said slots for the manual operation of said sliding frame, a pair of pivoted arms extending on opposite sides of the cable opening in position to engage the stops on the cable, and means on said shaft for controlling the operation of said pivoted arms.

2. The combination of an elevator shaft, fingers projecting into the shaft near the different floors of the building, there being one finger for each floor and the various fingers being successively offset with relation to each other, an elevator car, a cable extending through said shaft for starting and stopping the elevator car, stop blocks on said cable near each floor, a frame secured to the elevator car with an opening at one end through which said cable extends and horizontal slots through the opposite sides of said frame, a shaft in said frame opposite the outer slot, an arm slidably splined on said shaft and projecting through the slot in position to engage any one of said fingers, according to the adjustment of the arm, a frame for laterally adjusting said arm provided with means extending through the other one of said slots for the manual operation of said sliding frame, a pair of pivoted arms extending on opposite sides of the cable opening in position to engage the stops on the cable, a spring tending to draw said pivoted arms toward each other, means for separating said pivoted arms and means

actuated by said shaft for disengaging said separating means for said pivoted arms.

3. The combination of an elevator shaft, fingers projecting into the shaft near the different floors of the building, there being one finger for each floor and the various fingers being successively offset with relation to each other, an elevator car, a cable extending through said shaft for starting and stopping the elevator car, stop blocks on said cable near each floor, a frame secured to the elevator car with an opening at one end through which said cable extends and horizontal slots through the opposite sides of said frame, a shaft in said frame opposite the outer slot, an arm slidably splined on said shaft and projecting through the slot in position to engage any one of said fingers according to the adjustment of the arm, a frame for laterally adjusting said arm provided with means extending through the other one of said slots for the manual operation of said sliding frame, a pair of pivoted arms extending on opposite sides of the cable opening in position to engage the stops on the cable, a spring tending to draw said pivoted arms toward each other, an oscillatory rod located between said pivoted arms, pins projecting from said rod adapted to engage said pivoted arms and spread them when the oscillatory rod is turned in one position and to disengage them when the rod is turned in another position, another pin projecting from said rod, and an inclined plate secured to said shaft for engaging said last mentioned pin and turning said rod to a disengaging position, whereby the spring will draw such pivoted arms against the cable.

4. The combination of an elevator shaft, fingers projecting into the shaft near the different floors of the building there being one finger for each floor and the various fingers being successively offset with relation to each other, an elevator car, a cable extending through said shaft for starting and stopping the elevator car, stop blocks on said cable near each floor, a frame secured to the elevator car with an opening at one end through which said cable extends and horizontal slots through the opposite sides of said frame, a shaft in said frame opposite the outer slot, an arm slidably splined on said shaft and projecting through the slot in position to engage any one of said fingers according to the adjustment of the arm, a frame for laterally adjusting said arm provided with means extending through the other one of said slots for the manual operation of said sliding frame, a pair of pivoted arms extending in opposite sides of the cable opening in position to engage the stops on the cable, a spring tending to draw said pivoted arms toward each other, means for separating said pivoted arms, means actuated by said shaft for disengaging said separating means for said pivoted arms, and means for returning the said shaft and arms to their normal position after operation.

In witness whereof, I have hereunto affixed my signature in the presence of the witnesses herein named.

REUBEN W. WILSON.

Witnesses:
G. H. BOINK,
J. H. WELLS.