H. O'B. HARDING.

ELEVATING APPARATUS.

APPLICATION FILED DEC. 21, 1918.

1,360,212. **Patented Nov. 23, 1920.**

4 SHEETS—SHEET 1.

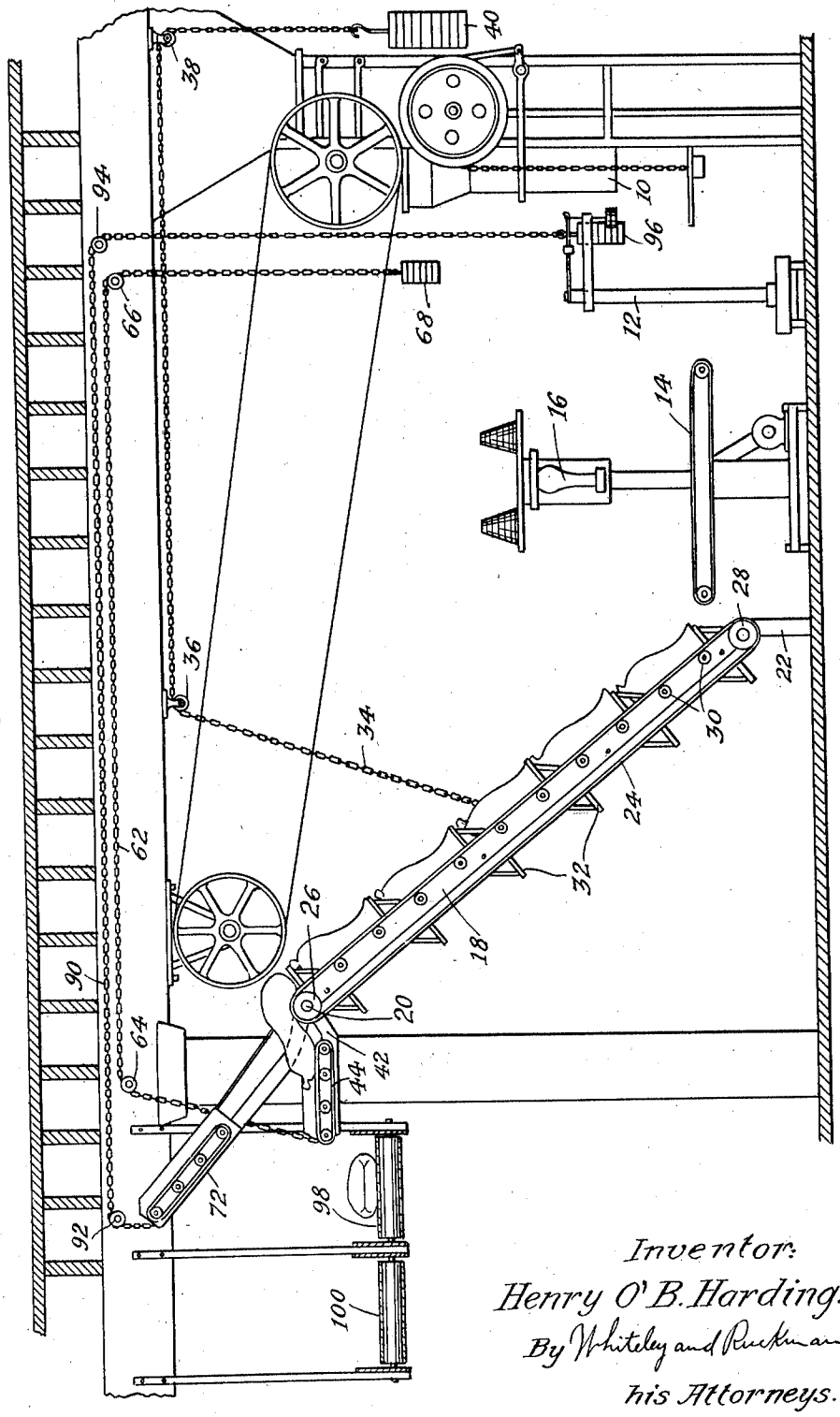


Fig. 1

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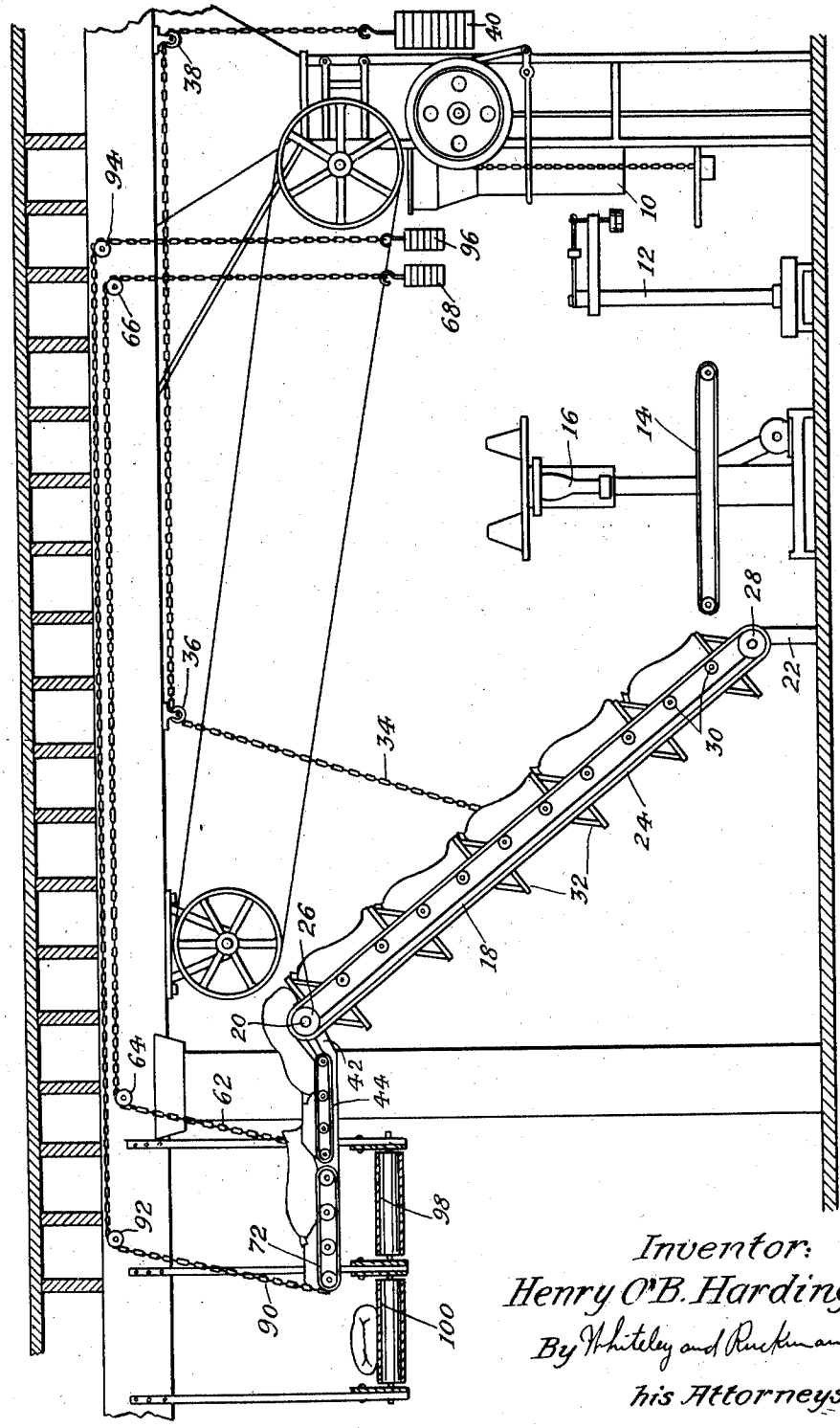
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4 SHEETS—SHEET 2.

Fig. 2



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4 SHEETS—SHEET 3.

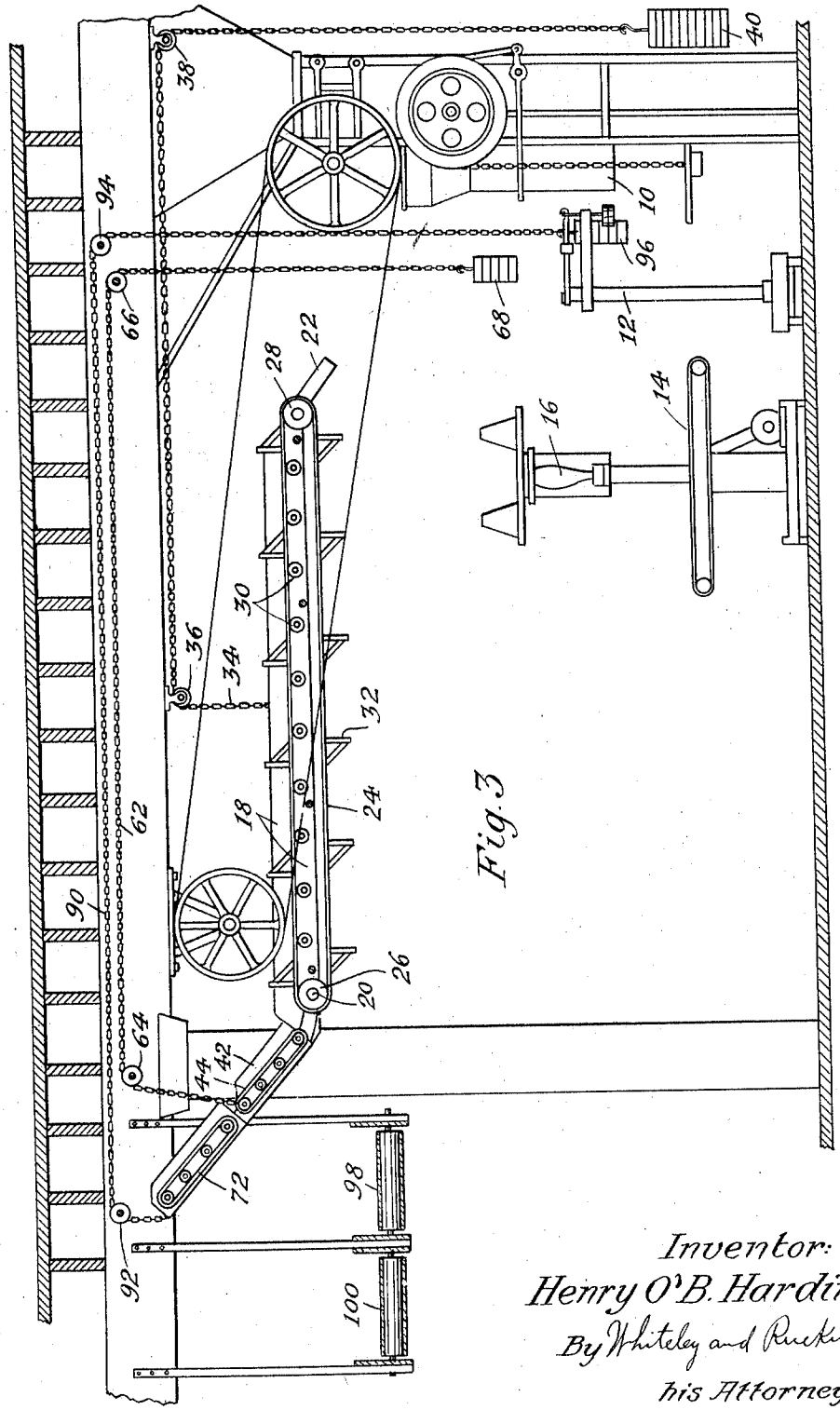


Fig. 3

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4 SHEETS—SHEET 4.

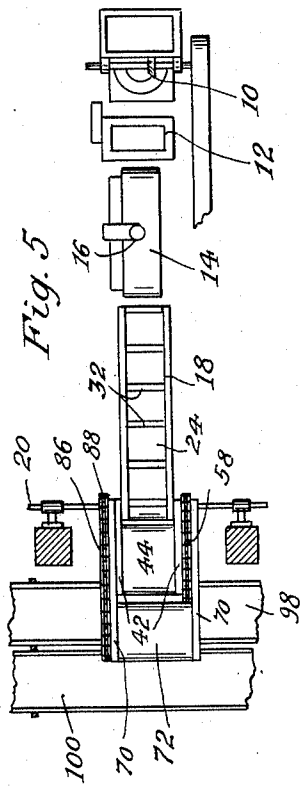


Fig. 5

Fig. 4

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UNITED STATES PATENT OFFICE.

HENRY O'B. HARDING, OF MINNEAPOLIS, MINNESOTA.

ELEVATING APPARATUS.

1,360,212. Specification of Letters Patent. Patented Nov. 23, 1920.

Application filed December 21, 1918. Serial No. 267,790.

To all whom it may concern:

Be it known that I, HENRY O'B. HARDING, a citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented certain new and useful Improvements in Elevating Apparatus, of which the following is a specification.

My invention relates to elevating apparatus and particularly to apparatus for elevating sacks of flour in mills, which apparatus is commonly known as a booster. It will be obvious that my apparatus may be used for elevating other articles also. An object of my invention is to provide an apparatus of this kind which will elevate sacks and deliver them to any one of a number of conveyers as desired. Another object is to provide an apparatus which may be readily swung from its operative position to the upper part of the room where it will be out of the way when not in use.

The full objects and advantages of my invention will appear in connection with the detailed description thereof and the novel features which constitute an embodiment of my inventive idea will be particularly pointed out in the claims.

In the accompanying drawings, which illustrate one form which my invention may assume,—

Figure 1 is a side view showing the apparatus arranged to deliver sacks to a conveyer belt. Fig. 2 is a side view showing the apparatus arranged to deliver sacks to another conveyer belt. Fig. 3 is a side view showing the apparatus swung up out of the way when not in use. Fig. 4 is an enlarged detail view showing the manner in which power is transmitted to operate the apparatus. Fig. 5 is a top plan view.

Referring to the drawings, 10 designates a packer of customary construction for packing material such as flour into sacks. From the packer, the sacks are placed upon scales 12 and weighed and are then placed upon an endless belt 14 which carries them under a sewing machine 16 which sews up the open tops. The sacks are delivered from the belt 14 to the apparatus now to be described which constitutes the inventive feature of the present application. The frame 18 of the elevating apparatus has its upper end pivotally mounted upon a power-driven shaft 20 while a foot or supporting member 22 for engaging the floor is attached to the lower end of the frame. An endless belt 24 runs over a roller 26 secured to the shaft 20 at the upper end of the frame and a roller 28 idly mounted in the lower end of the frame. Idler rollers 30 support the upper stretch of the belt, and a plurality of shelves or sack supports 32 are secured at regular intervals to the belt. A chain or other flexible member 34 is attached to the frame 18 near its middle and this chain runs over guide rollers 36 and 38 mounted a short distance below the ceiling, and the other end of the chain is provided with counterweights 40 by which the frame may be held in raised position as shown in Fig. 3. A short frame member has its two side portions 42 pivotally supported on shaft 20, and this frame carries an endless belt 44 which runs over rollers 46, 48, 50 and 52, the last three of which are idler rollers. As best shown in Fig. 4, the roller 46, which drives the belt, is secured to a shaft 54 upon which is secured a sprocket 56 over which runs a sprocket chain 58 passing over a sprocket 60 secured to the shaft 20. To the rear end of the short frame is secured a chain 62 passing over guide rollers 64 and 66 mounted near the ceiling, and the other end of the chain is provided with counterweights 68 which hold the said frame in the desired position. A second frame has its two side portions 70 pivotally supported on the shaft 20 outside the members 42 with one of the members 70 outside the chain 58 so as not to interfere with the operation of the belt 44. The rear portion of this frame carries an endless belt 72 so positioned that it may have its front end brought adjacent the rear end of the belt 44 so that the two belts are in alinement with each other. The belt 72 runs over rollers 74, 76, 78 and 80, the last three of which are idlers. The roller 74, which drives the belt, is secured to a shaft 82 upon which is secured a sprocket 84 over which runs a sprocket chain 86 passing over a sprocket 88 secured to the shaft 20. To the rear end of the second frame is secured a chain 90 passing over guide rollers 92 and 94 mounted adjacent the ceiling and the other end of the chain is provided with counterweights 96 by means of which the frame may be held in elevated position as shown in Fig. 1. When thus arranged, the belt 44 is adapted to discharge sacks upon a conveyer 98. When the second frame is

lowered so as to bring the belt 72 into alinement with belt 44 as shown in Fig. 2, the conveyer 98 is bridged and sacks are discharged upon a second conveyer 100 running adjacent to and parallel with the conveyer 98. It is obvious that more than one bridging member may be employed if it is desired to bridge more than one conveyer.

The operation and advantages of my invention will be obvious from the foregoing description. The closed sacks as they pass from the sewing machine are delivered to the endless elevating belt 24 where they are engaged by the members 32 and carried to the top of the apparatus. The sacks are discharged upon the belt 44 and, as previously explained, drop either upon the conveyer 98 or the conveyer 100 according to the position of the belt 72.

I claim:

1. An elevating apparatus comprising means for carrying sacks upwardly, a frame pivotally mounted upon a power-driven shaft, an endless receiving belt carried by said frame, means for driving said belt from said shaft, a second frame pivotally mounted upon said shaft, a second endless receiving belt carried by said second frame, means for driving said second belt from said shaft, and means whereby said second frame may be moved to bring its belt into or out of alinement with said first receiving belt.

2. An elevating apparatus comprising a frame having its upper end pivotally mounted upon a power-driven shaft, an endless belt carried by said frame, supporting means secured to said belt for carrying sacks, means for driving said belt from said shaft, an endless receiving belt adapted to receive said sacks and deliver them to a conveyer, a frame upon which said receiving belt is carried, said frame having its receiving end pivotally mounted upon said power-driven shaft, means for driving said belt from said shaft, a second endless receiving belt, a frame upon which said second belt is mounted, said frame having its front end pivotally mounted upon said shaft, means for driving said second belt from said shaft, and means whereby said second frame may be moved to bring its belt into or out of alinement with said first receiving belt.

In testimony whereof I hereunto affix my signature.

HENRY O'B. HARDING.