

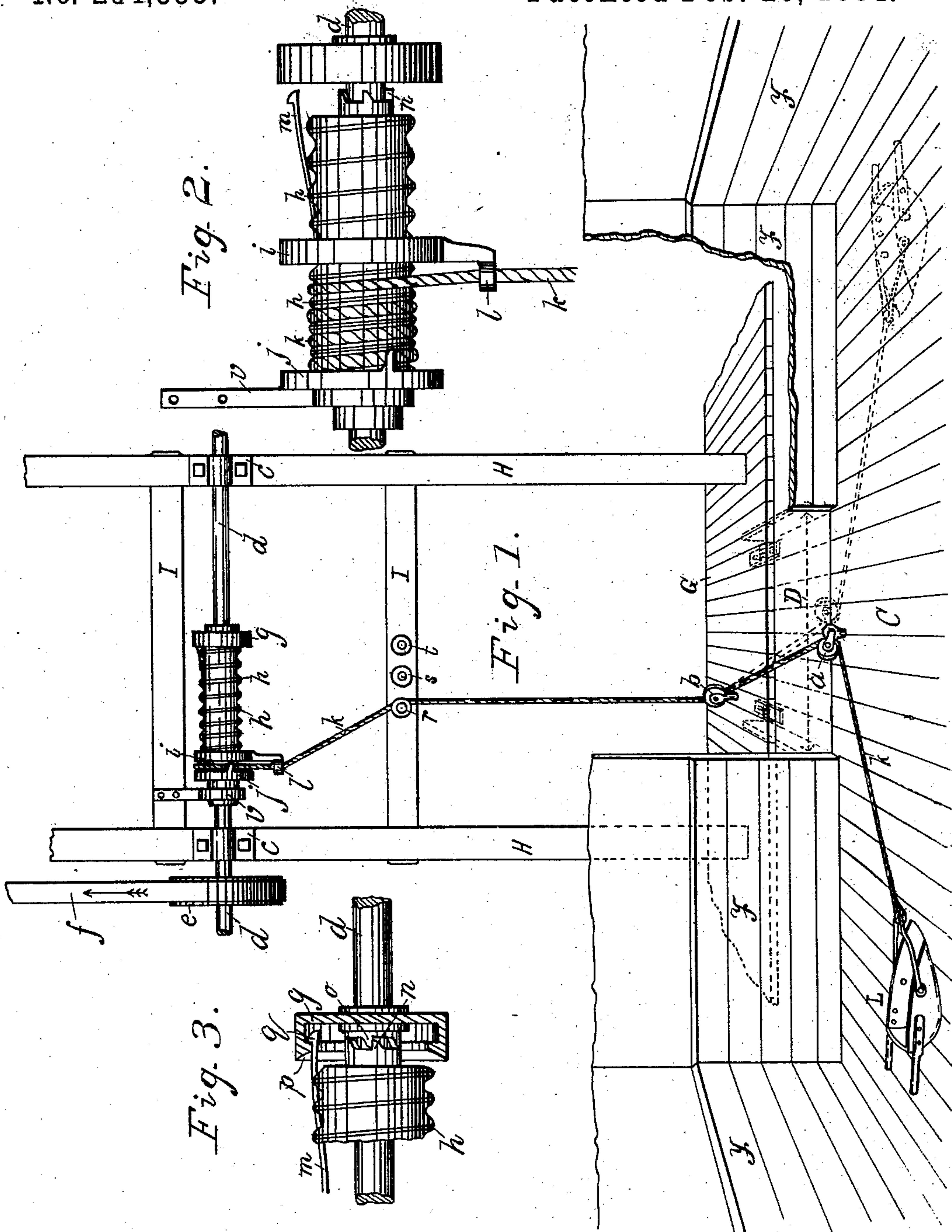
(No Model.)

J. B. PUGH.

AUTOMATIC GRAIN SHOVELER.

No. 294,333.

Patented Feb. 26, 1884.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JESSE B. PUGH, OF INDIANAPOLIS, INDIANA.

AUTOMATIC GRAIN-SHOVELER.

SPECIFICATION forming part of Letters Patent No. 294,333, dated February 26, 1884.

Application filed December 7, 1883. (No model.)

To all whom it may concern:

Be it known that I, JESSE B. PUGH, a citizen of the United States, residing at Indianapolis, in the county of Marion and State of Indiana, have invented a new and useful Improvement in Automatic Grain-Shovelers, of which the following is a specification.

My invention relates to improvements in automatic grain-shovelers; and the object of my improvements is to obtain a speedy and easy means of transferring grain in bulk from cars to elevators or other places. I attain this object by the mechanism illustrated in the accompanying drawings.

Similar letters refer to similar parts throughout the several views.

Figure 1 is a front view of the entire machine. Fig. 2 shows elevated spool when the scraper is running back. Fig. 3 is a vertical section of head *g*, with the spring *m* engaged with rim *p*, and the ratchet-teeth *n* and *o* engaged.

Fig. 1 shows a section of a box-car, with its floor *C* and sides *F F F F*, a door, *D*, opened toward the elevator-platform *G*, the chute of the elevator being between and on the same plane with the platform *G* and the car-floor *C*; also, the leading-block *a*, which is fastened to the floor *C*, and *b*, which is fastened to the platform *G*. The uprights *H H* are secured to the platform *G* and braced by the cross-beams *I I*, and such other braces as may be convenient and necessary. On the front of the uprights *H H* are the bearings *c c*, in which revolves the horizontal shaft *d d d d*, to which power, with continuous motion, is communicated by any suitable motor. The head *g* is secured to the shaft *d d d d* and revolves with it. The screw *h h h* is upon the outer circumference of a cylinder which fits neatly but loosely around the shaft *d d d d*, and is detached from the head *g*, save when connected as hereinafter described; also, the guide-nut *i*, with its arm *l*, the stop-nut *j*, the spring *v*, fastened at its outer or upper end to the upper cross-beam *I* and at its lower end to the screw *h h h*, and forming a spiral flat spring folding and unfolding upon itself, like the mainspring of a watch, and so adjusted that when the rope *k k k* is wound up on the screw *h h h* the spring *v* has its folds tight together. The scraper *L* and the leading-rollers *r s t* are bolted to the lower beam *I*.

In Fig. 2 there is shown the additional fea-

ture of the ratchet-tooth *n*, of which there are several of same size and shape and equidistant from each other, attached to the right-hand end of the cylinder, which carries the screw *h h h*, and having their straight side presented opposite to the direction of the motion of the shaft *d d d*, their other sides being beveled.

In Fig. 3 there is shown the additional feature of the ratchet-tooth *o*, of which there are the same number, of the like shape and size and equidistant from each other, as ratchet-teeth *n*. These ratchet-teeth *o* are attached to the left-hand end of a short cylinder of same size otherwise as the former cylinder, which carries the screw *h h h*, the right-hand end of which short cylinder is fixed to the inner surface of the head *g*, immediately around the shaft *d d d*. The ratchet-teeth *o* have their straight side presented with the direction of the motion of the shaft *d d d*, their other sides being beveled; also, the inwardly-projecting rim *p* on the inner surface of the head *g*, having its left-hand end beveled and its right-hand end at right angles with the direction of the shaft *d d d*; also, the spring *m*, which is flat and fits and works freely in a groove cut in the screw *h h h* through and below the bottom of the thread. This spring is secured at its left end in the left end of this groove. The right-hand end has on it the catch *q*, beveled on its right-hand or outer surface and vertical on its left-hand or inner surface, this spring being of such length that it catches inside the rim *p* whenever the ratchet-teeth *n* and *o* are fully engaged.

Having now described the different parts, it will be easy to see the working of the machine. The shaft *d d d* revolves continually, and by being connected with the cylinder, whose outer surface forms the screw *h h*, by the engaging of the ratchet-teeth *n* and *o* and the spring *m* with the rim *p*, gives to this cylinder the same motion as the shaft, thus winding the rope *k k* on the cylinder, and drawing the scraper *L*, filled with grain, to the door of the car. The right-hand end of spring *m* extends above screw *h h* when engaging with rim *p*, and when not so engaged and not held down by nut *i* the beveled portion of the right-hand end rests against the left side of the head *g*, thus preventing the cylinder from slipping to the right until power is applied to it for that purpose.

The guide-nut *i*, having threads cut on its inner surface to correspond to the threads on screw *h h*, and being prevented from revolving with screw *h h* by the passing of the rope *k k* through the guide-arm *l*, moves laterally toward the right on screw *h h*, pressing the spring *m* down and disengaging it from rim *p*, and by pressing against head *g* moves the cylinder bearing screw *h h* laterally to the left upon shaft *d d*, thus disengaging the ratchet-teeth *n* and *o* and stopping the revolution of the cylinder. The revolving of the cylinder also winds up spring *v*, which then helps to turn the cylinder in the opposite direction, unwinding the rope, moving the nut *i* back to its original position, and lessening the labor of drawing the scraper *L* back to reload. The guide-nut *j*, by being screwed on the screw *h h*, holds the upper end of the rope *k k*, and by being moved laterally increases or decreases the amount of rope used when necessary to change the distance which the grain must be moved. The leading-rollers *r s t* accomplish to a certain extent the same result. When it is desired to move grain a considerable distance, roller *r* is used, when a little less *s*, and for the least distance *t*. In drawing the scraper backward the passing of the rope *k k* through the arm *l* will cause the arm to stop at a point nearly over the roller used, and cause the cylinder, with its screw *h h*, to move again to the right, thus engaging the spring *m* with the rim *p*, and the ratchet-teeth *n* with the ratchet-teeth *o*, and cause the cylinder to revolve

again with the shaft. The leading-block *a* may be placed on the car-floor, on the chute, or on the platform *G*, or be dispensed with entirely. By using a double rope, as shown in Fig. 1, two scrapers may be operated at the same time.

I am aware that the various single parts that I have used are old, and as to them as single parts I make no claim.

What I do claim as my invention, and desire to secure by Letters Patent, is—

1. The combination, in an automatic grain-shoveler, of a shaft, *d d*, to which ratchet-teeth *o* and head *g*, with rim *p*, are attached, and a cylinder bearing screw *h h* on its outer surface, and to which ratchet-teeth *n* and spring *m* are attached, and guide-nut *i*, with its arm *l*, through which rope *k k* works, all substantially as described, and for the purposes specified.

2. The combination, in an automatic grain-shoveler, of a scraper, *L*, rope *k k*, leading-blocks *a* and *b*, leading-rollers *r s t*, head *g*, bearing rim *p* on its inner surface, attached to shaft *d d*, cylinder bearing screw *h h* on its outer surface, encircling shaft *d d*, and having lateral movement thereon, springs *m* and *v*, ratchet-teeth *n* and *o*, guide-nut *i* on screw *h h*, with arm *l*, and guide-nut *j*, all substantially as described, and for the purposes specified.

JESSE B. PUGH.

Witnesses:

W. A. B. ROBERTS,
ORLANDO KNOWLTON.