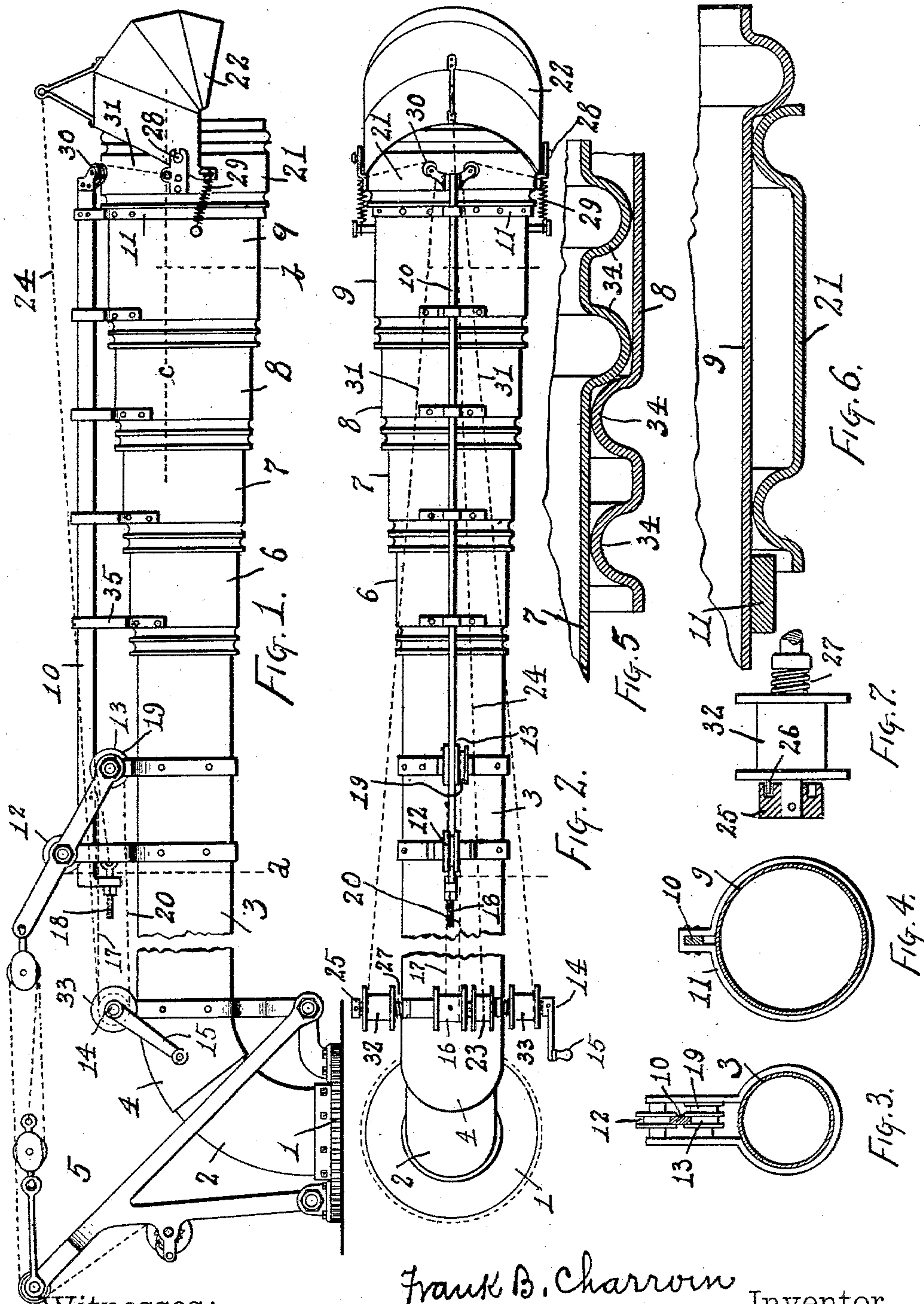


(No Model.)

F. B. CHARROIN.  
PNEUMATIC STACKER.

No. 566,841.

Patented Sept. 1, 1896.



Witnesses:  
E. R. Shipley.  
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# UNITED STATES PATENT OFFICE.

FRANK B. CHARROIN, OF LA PORTE, INDIANA, ASSIGNOR OF ONE-HALF TO  
THE M. RUMELY COMPANY, OF SAME PLACE.

## PNEUMATIC STACKER.

SPECIFICATION forming part of Letters Patent No. 566,841, dated September 1, 1896.

Application filed April 18, 1896. Serial No. 588,145. (No model.)

*To all whom it may concern:*

Be it known that I, FRANK B. CHARROIN, of La Porte, La Porte county, Indiana, have invented certain new and useful Improvements in Pneumatic Stackers, of which the following is a specification.

This invention pertains to improvements in the construction of pneumatic stackers and will be readily understood from the following description, taken in connection with the accompanying drawings, in which—

Figure 1 is a side elevation of an automatic stacker exemplifying my improvements; Fig. 2, a plan of the same, the elevating-rig being omitted; Fig. 3, a vertical transverse section in the plane of line *a* of Fig. 1; Fig. 4, a vertical transverse section in the plane of line *b* of Fig. 1; Fig. 5, a horizontal section, enlarged, of a portion of the telescopic tube-wall in the plane of line *c* of Fig. 1; Fig. 6, a similar view at the collar 21 of the tube, and Fig. 7 a plan of one of the cable-spools.

In the drawings, 1 indicates the usual turntable of the pneumatic stacker, to be mounted and provided as is customary; 2, a segmental tube-section carried, as usual, by the turntable; 3, the usual main body of the stacker-tube; 4, the usual curved heel of the body engaging the pipe 2, whereby the body 3 is permitted to have its outer end raised or lowered by the movement of part 4 on part 2, or to swing sidewise by the movement of the turn-table; 5, the elevating-rig, of not unusual construction, carried by the turn-table and serving as means for elevating and securing the tube at desired angles to the horizontal; 6, a tube-section telescoped upon the outer end of tube-body 3; 7, 8, and 9, successive telescopic tube-sections, the drawings showing the telescopic sections fully extended; 10, a guide-bar disposed above and parallel with the general tube; 11, a clip, which may also be a band, rigidly secured to the outer section 9 and to the outer end of guide-bar 10; 12, a roller disposed over the heel of the guide-bar and mounted in a clip rigidly secured to body-section 3; 13, a second roller engaging under the guide-bar and forward of roller 12 and similarly supported by a clip on the body-section, the result being that

heel by the rollers 12 and 13 and in turn supporting the outer end of the telescopic tube, the rollers permitting longitudinal movement of the guide-bar with reference to body-section 3 as the telescopic tube is extended or retracted; 14, a winding-shaft mounted in bearings carried by the heel of body-section 3; 15, a crank on this shaft; 16, a spool fast on the winding-shaft; 17, a cable winding upon spool 16 and having its forward end attached to a rearward portion of guide-bar 10, whereby, when the winding-shaft is turned, cable 17 is wound up and the guide-bar drawn rearwardly and the telescope-tube retracted; 18, an adjustable eyebolt carried by the heel of the guide-bar; 19, a sheave fast with roller 13; 20, a cable going from eyebolt 18 to and over sheave 19 and back to spool 16, on which it winds in a direction opposite to that of the winding of cable 17, the result being that by turning the winding-shaft in proper direction cable 20 draws forward on the guide-bar and extends the telescopic tube, cable 17 paying out to the same extent, the telescopic tube being thus extended or retracted by turning the winding-shaft in one or the other direction; 21, a collar mounted for free rotation on the forward end of outer tube-section 9; 22, an adjustable hood at the mouth of the tube and trunnioned to collar 21; 23, a second spool on the winding-shaft; 24, a cable winding on spool 23 and extending forward to an arm on the hood 22, so that the turning of the spool may adjust the angular position of the hood upon its trunnions, spool 23 being loose upon the winding-shaft; 25, a collar fast upon the winding-shaft and having in its face a circular series of holes; 26, a clutch-pin projecting from spool 32 into engagement with a selected one of the holes in collar 25; 27, a spring urging spool 32 toward collar 25, so as to keep the clutch-pin in engagement, the arrangement being obviously such that the spool may be moved endwise out of clutching engagement and then turned and re-clutched in new relationship to the winding-shaft; 28, the trunnions connecting hood 22 with collar 21; 29, springs tending to move the hood in one angular direction upon its trunnions as opposed to the strain of cable 24;



30, a pair of sheaves carried on angular axes at the forward end of guide-bar 10 over collar 21; 31, two cables, each engaging a sheave 30 and having its forward end extending downwardly into engagement with collar 21, each of these cables extending rearwardly to a spool upon the winding-shaft; 32 and 33, spools mounted upon the winding-shaft for the cables 31, these spools being loose upon the winding-shaft and clutched thereto, as is also spool 23; 34, beads swaged upon the inner surfaces of the rear ends of the telescopic sections and upon the outer surface of their forward ends, and 35 bails rigidly secured to the telescopic sections and engaging loosely over the guide-bar 10, whereby the telescopic sections are suspended from the guide-bar.

The tube parts are formed of comparatively thin sheet metal, and the internal and external beadings form guides and stops for the telescopic action and also stiffen the extremities of the tube-sections. The tube is raised and lowered in the usual way by the operation of elevating-rig 5 and is turned by the usual operation of the turn-table. The tube is extended or retracted by the operation of spool 16 on cables 17 and 20. Hood 22 is adjusted upon its trunnions 28 by winding more or less of cable 24 upon spool 23, which, by unclutching it, may be turned and fixed in any desired relationship to the winding-shaft. The hood is swiveled upon the tube, by the rotation of collar 21 upon the tube, by the action of cables 31 winding upon spools 32 and 33, which spools may be unclutched and turned to and fixed in any desired relationship to the winding-shaft. All the spools are of the same diameter and the hood adjustment is therefore not disturbed as the tube is extended or retracted. To adjust collar 21 and thus swivel the hood so as to cause the tube to discharge into corners, as when working in barns, spool 32 or 33 is unclutched and unwound to give the desired slack of cable, after which the other one of the two spools is wound up to produce the adjustment of hood. Trunnions 28 engage open bearings in collar 21, thus permitting the hood to be removed by unhooking its springs and withdrawing its trunnions from their bearings, thus permitting the tube to swing in a specially short radius. Sheave 19 and roller 13 are of the same diameter, the result being that the outward movement of the guide-bar, in extending the tube, is produced partly by friction of roller 13 on the bar and partly by the strain of cable 20 upon eyebolt 18, which eyebolt permits of the cable being kept taut.

I claim as my invention—

1. In a pneumatic stacker, the combination, substantially as set forth, of a turn-table, a segmental pipe-section thereon, a sheet-metal tube-body having a segmental heel engaging said pipe-section, successive sheet-metal tapering telescopic tube-sections at the outer end of said tube-body, beads swaged out-

wardly at the forward ends of said telescopic tube-sections, and beads swaged inwardly at the inner ends of said telescopic sections.

2. In a pneumatic stacker, the combination, substantially as set forth, of a swinging stacker-tube, a collar mounted for rotation on the outer end thereof, a hood trunnioned to said collar, and devices for turning said collar upon said tube.

3. In a pneumatic stacker, the combination, substantially as set forth, of a swinging stacker-tube, open bearings at the sides of the front end thereof, a hood having trunnions engaging said open bearings, and springs connecting said hood and stacker-tube and tending to move the hood in one direction upon its trunnions, and devices to adjust and hold said hood against the tension of said springs.

4. In a pneumatic stacker, the combination, substantially as set forth, of a swinging stacker-tube, a collar mounted for rotation on the outer end thereof, a hood trunnioned to said collar, and means for turning the collar upon the tube and for adjusting the hood upon its trunnions.

5. In a pneumatic stacker, the combination, substantially as set forth, of a tube-body, telescopic tube-sections on the forward end thereof, a guide-bar disposed over the tube and secured to the forward one of the telescopic sections, a support attached to said tube-body in which the inner portion of said guide-bar may move endwise, bails secured to the remaining telescopic tube-sections and engaging over said guide-bar, and means for extending and retracting the telescopic sections.

6. In a pneumatic stacker, the combination, substantially as set forth, of a tube-body, a roller supported thereby, a second roller supported by the tube-body forward of and below the first roller, a guide-bar with its rear portion engaging under the first and over the second of said rollers, an outer telescopic tube-section secured to the outer end of said guide-bar, and intermediate telescopic tube-sections connecting the same with said tube-body.

7. In a pneumatic stacker, the combination, substantially as set forth, of a tube-body, telescopic tube-sections on the outer end thereof, a guide-bar disposed over the tube and supported at its rear portion from said tube-body and attached at its forward portion to the outermost telescopic tube-section, a collar mounted for rotation on the outer end of the stacker-tube, a hood carried by said collar, sheaves supported by the outer end of said guide-bar, and cables leading from the sides of said collar over said sheaves and inwardly to adjusting devices carried by said tube-body.

8. In a pneumatic stacker, the combination, substantially as set forth, of a tube-body, telescopic tube-sections thereon, a trunnioned hood, a collar loosely surrounding the mouth of the stacker-tube, and supporting said hood, a winding-shaft mounted on the tube-body, spools mounted independently on said wind-



ing-shaft, and cables from said spools for operating the telescopic sections and hood, whereby the hood may be adjusted around the longitudinal axis of the tube.

- 5 9. In a pneumatic stacker, the combination, substantially as set forth, of a stacker-tube, a collar mounted to turn on the outer end of said tube, a hood trunnioned thereto, a wind-

ing-shaft mounted near the heel of the tube, spools independently clutched to said shaft, 10 and cables leading from said spools to said collar and hood.

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Witnesses:

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