E. O. STAMM.

RIDDLE.

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1,406,237. Patented Feb. 14, 1922.

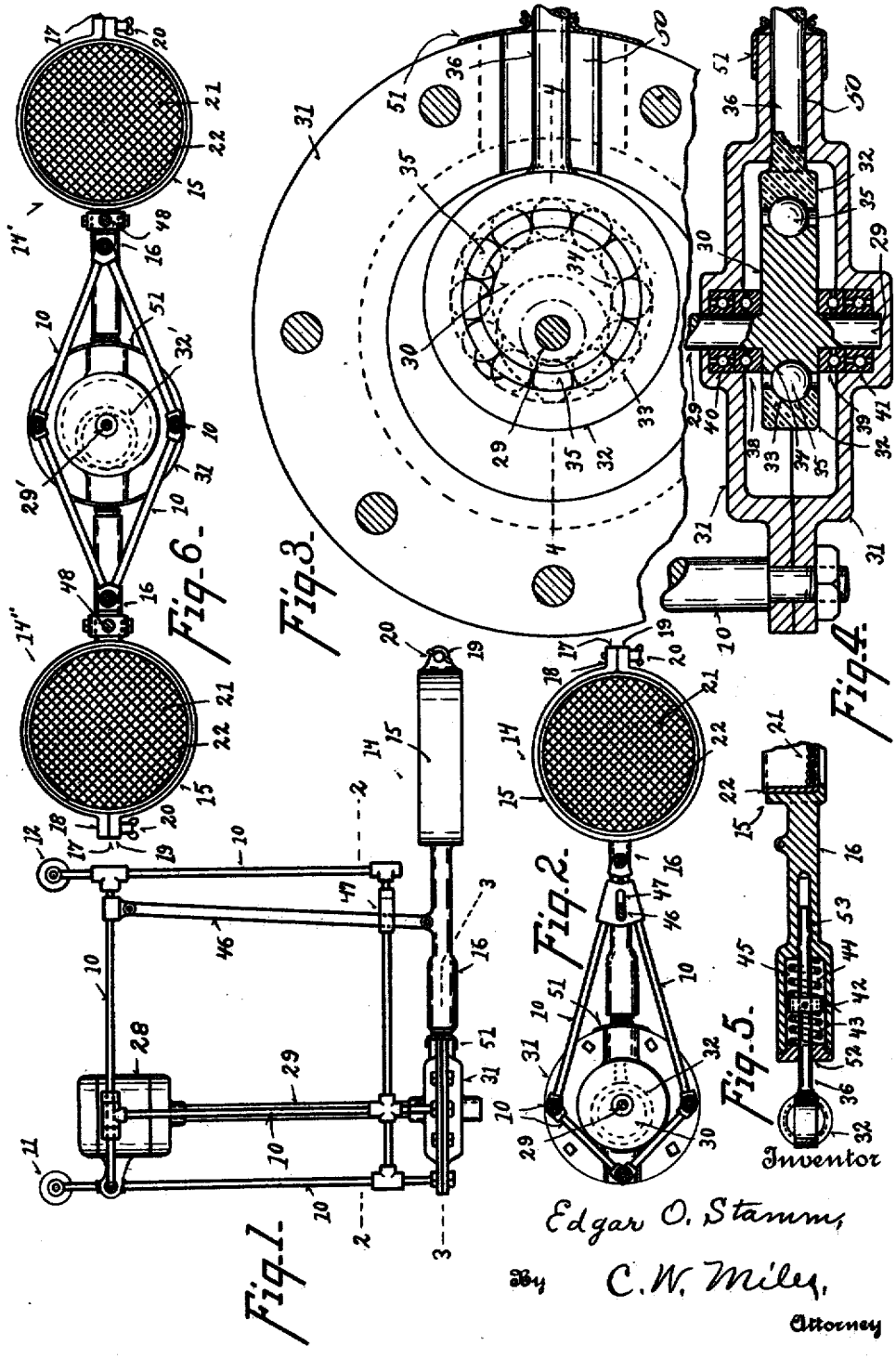


Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Fig. 5.

Fig. 6.

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RIDDLE.

1,406,237. Specification of Letters Patent. Patented Feb. 14, 1922.

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To all whom it may concern:

Be it known that I, EDGAR O. STAMM, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Riddles, of which the following is a specification.

My invention relates to improvements in riddles. One of its objects is to provide improved means to support and operate one or more riddles adapted to screen sand and other materials employed by molders. Another object is to provide an improved actuating mechanism whereby the riddle is subjected to high speed vibrations of relatively short throw best adapted to the passage of a maximum of material through the screen in a given period of time. Another object is to provide improved actuating mechanism whereby maximum screening results are attainable with a given amount of power or energy. My invention also comprises certain details of form, combination, and arrangement, all of which will be fully set forth in the description of the accompanying drawings, in which;

Fig. 1 is a side elevation of a riddle embodying my invention.

Fig. 2 is a sectional view on line 2 2 of Fig. 1.

Fig. 3 is a sectional detail on line 3 3 of Fig. 1.

Fig. 4 is a sectional detail on line 4 4 of Fig. 3.

Fig. 5 is a sectional detail, also on line 3 3 of Fig. 1.

Fig. 6 is a view similar to Fig. 2 illustrating a modification.

The accompanying drawings illustrate the preferred embodiments of my invention, in which 10 represents a frame which may be made of tubing and pipe or similar fittings, or if desired of more rigid and heavy material. The frame 10 may be adjustably supported upon a cable by means of wheels 11 and 12 adapted to travel along the cable, or said frame may be rigidly attached to overhead parts of a building, or may be adapted to rest upon feet or legs supported upon the sand heap or floor. The frame 10 serves as a support for the riddle or screen 14 and its actuating mechanism.

The screen preferably comprises an annular sheet metal band 15 which is rigidly attached to and supported by the stem 16 at one end, and is slit at 17 and its projections 18 and 19 held together by a clamping screw 20. Screen members comprising perforated bottoms 21 and continuous annular sheet metal walls 22 are provided in duplicate with screen bottoms of different sized mesh, and also different members having mesh of the same size, so that said members 21 may be interchangeably mounted in and relative to the members 15.

An electric motor, or if preferred an air motor 28 is mounted upon the frame 10 and serves to rotatably drive the shaft 29. The shaft 29 at its lower end is provided with an eccentric 30 within a divided housing 31, in the walls of which said shaft 29 is journaled. An eccentric strap 32 is located within the housing 31 and fitted to the eccentric by means of ball raceways 33 and 34 and balls 35 so as to reciprocate said eccentric strap and its shank 36 relative to said housing at relatively high speed and short strokes, designed to impart to the screen a series of rapid and sharp vibrations to facilitate passage of a large amount of material through the screen per unit of time. The shaft 29 is preferably provided with thrust bearings 38 and 39, and with ball journal bearings 40 and 41, in order to take the strain and reduce the frictional resistance to a minimum. The housing 31 is rigidly mounted with reference to the frame 10.

The shank 36 of the eccentric strap 32 may be rigidly connected to the stem 16 of the screen so as to directly impart the thrusts or vibrations received by the eccentric strap to the screen, but I preferably provide a collar 42 on the shank 36 which collar is interposed between two spiral springs 43 and 44, seated in a recess 45 in the stem 16, and bearing against opposite ends of said recess, so that thrusts imparted to the shank 36 will be transmitted through the springs 43 and 44 to the stem 16 and at the same time avoiding such sharp and periodically severe strains as to be liable to damage the mechanism. By interchangeably employing springs of different grades of stiffness, a considerable range of adjustment may be had to suit the mechanism to the particular work in hand.

In the modification Fig. 6 I have illustrated two screens 14′ and 14″ both attached to an eccentric strap 32′ substantially as heretofore described, and both receiving vibratory motion through a shaft 29′ from a

single motor such as illustrated in Fig. 1. In Fig. 1 a link 46 is pivotally connected at one end to the frame 10 and at the opposite end to the stem 16 close to the screen 14 to support the screen and its contents relative to frame 10 with as little frictional resistance as possible. The link 46 is preferably guided at its lower end to a limited movement longitudinally of the slot 47 in the frame 10. Similar link members 48 are provided in Fig. 6 to support the major portion of the weight of the screens 14′ and 14″ directly from the frame 10′ thereof.

As illustrated in Figs. 3 and 4 the shank 36 where it passes through the wall of the housing 31 has a longitudinal and a lateral movement within the slot 50, and I preferably provide a hood of textile material 51 at this point to prevent dust or gritty material from entering the bearings or chamber of the housing 31. As illustrated in Fig. 5 the shank 36 has two bearings 52 and 53 in the stem 16, in which the shank 36 moves endwise with reference to the stem 16 to the extent that said springs 43 and 44 are compressed at each stroke of the shank 36.

The apparatus herein illustrated and described is capable of considerable modification without departing from the principle of my invention.

What I claim is.

1. A riddle comprising a dependingly mounted supporting frame, a motor mounted rigidly upon said frame and provided with a shaft to be rotatably driven, an eccentric mounted upon said shaft, an eccentric strap reciprocally actuated by said eccentric, a housing inclosing said eccentric and eccentric strap and forming a bearing support for said shaft, and a screen member movably supported relative to said frame and connected to said eccentric strap to reciprocatorily energize said screen member.

2. A riddle comprising a depending supporting frame, a motor mounted rigidly upon said frame and provided with a shaft to be rotatably driven therefrom, a housing carried rigidly by said supporting frame in which said shaft is journaled, an eccentric mounted upon said shaft within said housing, an eccentric strap within said housing reciprocally actuated by said eccentric and having a shank extending outside of said housing to vibratorily reciprocate a screen member, and a screen member movably supported relative to said frame and connected to said eccentric strap shank.

3. A riddle comprising a supporting frame, a motor mounted rigidly upon said frame and provided with a shaft to be rotatably driven, an eccentric mounted upon said shaft, an eccentric strap reciprocally actuated by said eccentric and provided with a reciprocally moving shank, a screen member dependingly and movably mounted relative to said frame, and resilient connecting means to transmit vibratory energy from said eccentric strap shank to said screen member.

4. A riddle comprising a portable supporting frame, a motor mounted rigidly upon said supporting frame and provided with a downwardly directed shaft to be rotatably driven thereby, a screen member dependingly and movably mounted relative to said frame, and resilient connecting means interposed to transmit vibratory energy from said reciprocally motor driven member to said screen member.

In testimony whereof I have affixed my signature.

EDGAR O. STAMM.