July 7, 1936. M. C. KLINE 2,047,105

CORE STRIPPING MACHINE

Filed June 29, 1935

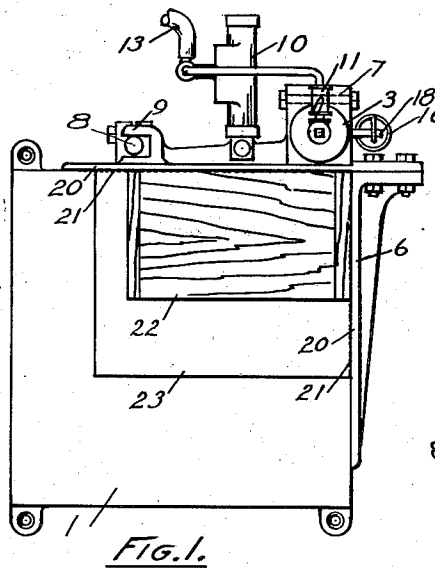


FIG. 1.

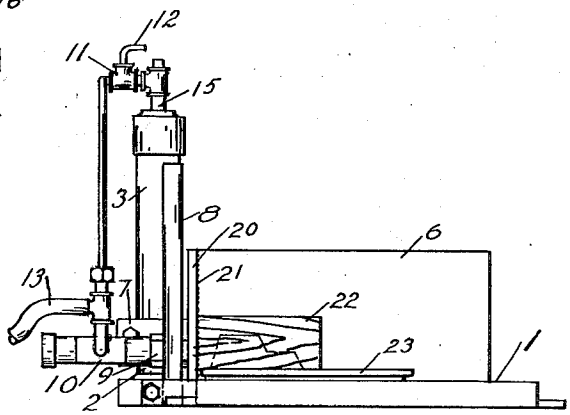


FIG. 2.

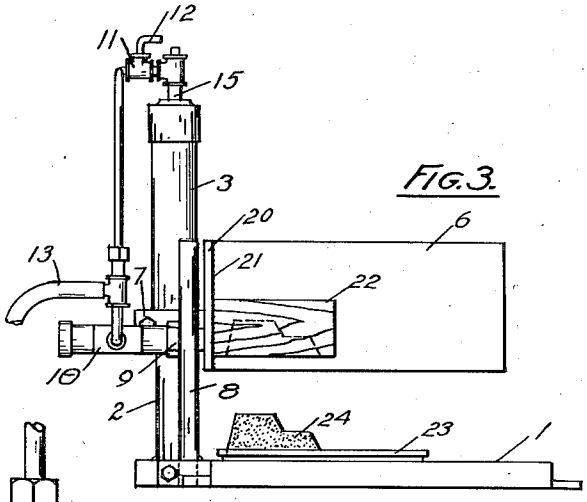


FIG. 3.

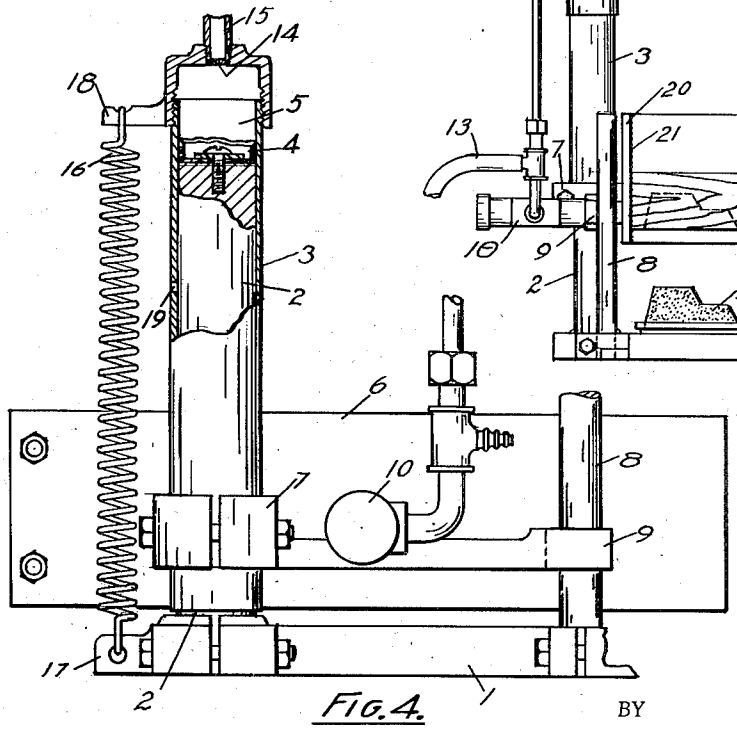


FIG. 4.

INVENTOR.
Myron C. Kline
BY
Gloria G. Miller
ATTORNEY.

Patented July 7, 1936 2,047,105

UNITED STATES PATENT OFFICE

2,047,105

CORE-STRIPPING MACHINE

Myron C. Kline, Erie, Pa.

Application June 29, 1935, Serial No. 29,181

7 Claims. (Cl. 22—10)

This invention relates generally to core making machines and it has particular relation to core stripping machines.

It has been the practice in stripping cores, especially small cores in small job lots, to use a hammer for making impacts on the core box to free it from the surface of the sand which forms the core. This results many times in the edges of the cores being broken off requiring time to be taken for patching the broken surfaces, and also the size and general contour of the core is variated by this impact. The core making machines now in use require a new set up for every job and they have therefore been found impracticable on small job lots.

It is, accordingly, an object of my invention to provide a core stripper which is universal in character and which will remove the core box from the core with the maximum of efficiency.

Another object of my invention is to provide a core stripper especially adapted for small cores which will remove the core box from the core without knocking off portions of the surface of the core.

Another object of my invention is to provide a core stripper which will be adapted for many different sizes and shapes of core boxes without change of set-up of the machine.

Another object of my invention is to provide a core stripper which will be easy to manufacture, economical in cost, efficient in use and easy to maintain.

Another object of my invention is to provide a core stripper which is portable and which may be set up in any part of the shop.

Another object of my invention is to provide a core stripper which will delay the separation of the core box from the core long enough after the vibrator commences operating to provide a complete separation of the core from the core box.

Another object of my invention is to provide a core stripper for miscellaneous small job lots which do not warrant a set-up on the standard core making machines now in use.

Other objects of my invention will become apparent from the following detailed description taken in conjunction with the accompanying drawing in which

Fig. 1 is a plan view of my novel core stripper.

Fig. 2 is a view in side elevation of my novel core stripper.

Fig. 3 is a side elevational view showing the angular frame of the core stripper in a lifted position.

Fig. 4 is an enlarged view in side elevation showing the cylinder partly in section.

Referring to the drawing, apparatus showing my preferred construction in Figs. 1 and 2 comprises a base 1 and a post or plunger 2 mounted in one corner thereof. An open ended cylinder 3 is invertedly mounted over the plunger 2 and reciprocates relative to the plunger 2. A flanged washer 4 secured by a screw 5 is mounted on the upper end of the plunger 2 and its periphery contacts the inner walls of the cylinder 3.

An angle frame 6, preferably set at an angle of ninety degrees, is secured to the moving cylinder 3 by suitable clamps 7 and moves therewith upon the upward movement of the cylinder 3. A guide post 8 is also mounted on the base 1 and jaws 9 integral with the angle frame 6 engage the post 8 to guide the angle frame 6 in a straight upward path. A vibrator 10 is secured to the frame 6 and moves therewith in order to vibrate the frame 6 upon air being admitted to the vibrator 10. It will be apparent that the base 1 will be indirectly vibrated through the plunger 2 although to a much lesser degree than the frame 6.

A valve 11 having a handle 12 for adjusting the size of the aperture in the valve 11 is disposed in the supply line 13 immediately adjacent a restricted aperture 14 in the plug 15 which is disposed in the upper portion of the cylinder 3. The restricted aperture 14 normally delays the upward movement of the cylinder 3 on the plunger 2 and causes the cylinder to rise slowly. The handle 12 adjusts the size of the aperture in the valve 11 to regulate the length of delay and the rate of rise of the cylinder 3 on the plunger 2. The air supply line 13 supplies air to the vibrator 10 a well as to the cylinder 3 to raise the cylinder 3 on the plunger 2. A tension spring 16 secured at its lower end to a lug 17 on the base 1 and at its upper end to a lug 18 on the top of the cylinder 3 is provided to return the cylinder 3 to its normal position after the completion of the core stripping operation. Any suitable means (not shown) may be provided to control the air supply line 13 to provide air for the vibrator 10 and the cylinder 3. An aperture 19 of larger diameter than the restricted aperture 14 in the plug 15 is disposed in the side wall of the cylinder 3 to limit the upward movement of the cylinder 3 on the plunger 2.

The faces 20 of the frame 6 may be roughened by any suitable means or a roughened paper 21 such as sand paper or other suitable material may be disposed on the face 20 of the frame 6 to pro-

vide a gripping surface for the core box 22 when it is held thereagainst. The frame 6 moves relative to the base 1 and it normally seats thereon.

In operation, the core box 22 is filled with sand, struck off, and placed in an inverted position on the core plate 23 in the usual manner. The core plate 23 is disposed on the base 1 and the core box 22 is manually forced into the apex of the angle frame 6. Although clamping means could be provided for the core box 22, it has been found that the placing of the core box 22 against the roughened face 20 of the frame 6 provides a much simpler and quicker method of stripping cores and it is universal in character and the work is entirely satisfactory. Control means for the air supply line (not shown) usually a foot lever, is then operated to supply air to the vibrator 10 and to the cylinder 3. The vibrator 10 commences to operate immediately to vibrate the frame 6 directly and the base 1 indirectly to a lesser extent than the frame 6 before there is any upward movement of the frame 6 due to the raising of the cylinder 3. The air passing through the restricted aperture 14 and the aperture in the valve 11, which causes an initial delay in the movement of the cylinder 3 on the plunger 2, slowly raises the cylinder 3 and the frame 6 attached thereto on the plunger 2 to a position as shown in Fig. 3. The core box 22 being held against the face 20 of the frame 6 is raised with the frame 6 and is separated from the core 24 which remains on the core plate 23. The upward movement of the frame 6 is limited by the aperture 19 in the side wall of the cylinder 3 for when the aperture 19 reaches the upper portion of the flanged washer 4, the air passes out through this aperture 19 which is larger than the restricted aperture 14 preventing further upward movement. The core box 22 is then removed, the air pressure released, and the spring 16 returns the cylinder 3 and the frame 6 attached thereto to its original position.

Although I have shown an angle frame which moves away from the base, the idea disclosed in my invention could be built in a machine having a base which moves away from a stationary frame.

It will be apparent that I have provided a novel core stripper which may be used on many different sizes and shapes of cores, which is especially adaptable for small job lots not warranting a set-up on a conventional core making machine, which requires no preliminary set-up, and which produces a perfect core.

Various changes may be made in the specific embodiment of the present invention without diverting from the spirit thereof, or within the scope of the appended claims.

What I claim is:

1. A core stripping machine comprising a base, an inverted plunger mounted on said base, an open ended cylinder mounted on said plunger and movable thereon relative to said base, an angular frame carried by said cylinder and movable therewith to position and raise various sizes and shapes of independently constructed core boxes away from their cores, means for moving said cylinder on said plunger away from said base, and means for automatically delaying the movement of said cylinder with its attached frame on said plunger after said moving means has been placed in an operative position, and means for vibrating said frame directly during and after and said base indirectly during said delay period.

2. Apparatus as in claim 1 wherein means are provided for limiting the movement of said cylinder on said plunger.

3. A core stripping machine comprising a base, an angular open-sided frame movable relative to said base having a roughened face surface for positioning and separating various sizes and shapes of core boxes from their respective cores, said core boxes being held against the face of said frame, means for separating said base and said frame, a vibrator for vibrating said base and said frame, and means for automatically delaying the separation of said base and said frame after said separating means has been placed in a position for operation and while said vibrating means is in operation, said delaying means also permitting the separation to take place very slowly.

4. A core-stripping machine comprising a base, an open angular frame disposed on said base having faces disposed at substantially 90 degrees from each other for positioning and raising various sizes and shapes of core boxes away from their cores, means for separating said base and said frame a predetermined amount, means for delaying the movement of said frame away from said base after said separating means are placed in an operative position, and vibrating means disposed on said frame for vibrating said frame directly and for vibrating said base indirectly during said delay period, the vibration of said base being practically negligible after the separation of said base and said frame.

5. Claim the same as in claim 4 wherein said vibrator, and said separating means all function automatically upon operation of a single air valve.

6. A core-stripping machine comprising a base, an upright plunger rod mounted on said base, an open-ended cylinder mounted on said rod and disposed to move thereon, an open angular frame carried by said cylinder and movable therewith relative to said base to position and separate various sizes and shapes of core-boxes from their respective cores, a vibrator for vibrating said frame and for vibrating said base to a lesser degree than the frame, means for supplying air to said vibrator and said cylinder, said air causing said cylinder to move on said plunger away from said base, and controlled delay means which operate upon the opening of said air supply means to automatically delay the movement of said cylinder with its attached frame away from the base while said vibrator is in operation.

7. Apparatus as in claim 6 wherein means are provided for returning the cylinder to its normal position when the air supply is cut off.

MYRON C. KLINE.