

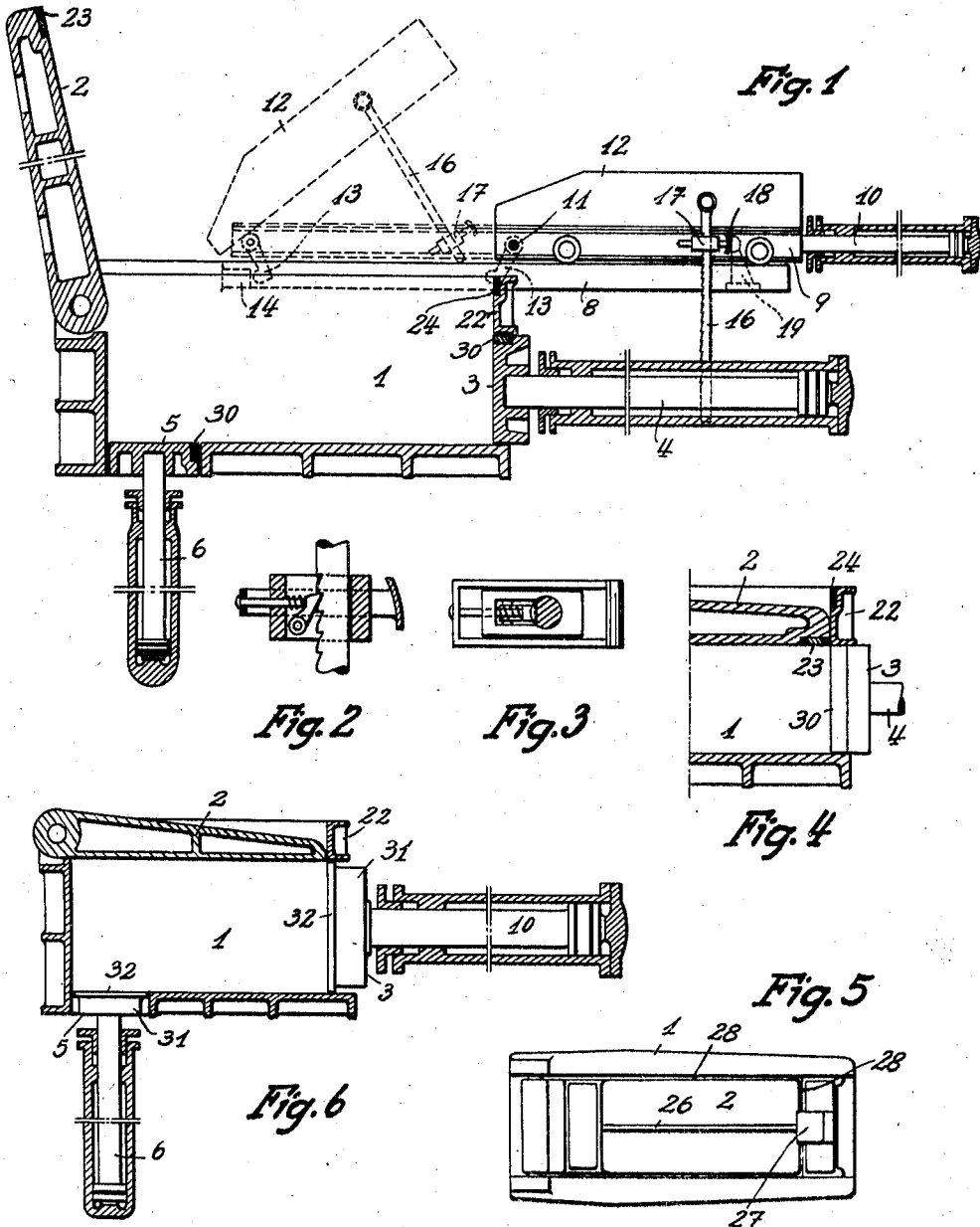
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BUNDLING PRESS

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BUNDLING PRESS

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My invention concerns bundling presses, especially hydraulic presses for bundling scrap into blocks, whereby the scrap is filled into the box of the press by an auxiliary loading hopper.

One object of my invention is to accelerate the pressing.

A further object of my invention is to prevent interruptions while pressing, and the press from getting damaged through pieces of scrap getting jammed.

The presses of the above kind known have the auxiliary loading hopper hinged on one side of the box of the press. While the press is working, the auxiliary loading hopper is filled, ready for the next pressure process, and after the pressure is finished, and the pressed bundle ejected, the lid is opened, and the auxiliary loading hopper tilted up, so that its contents falls into the press box. The material then forms a triangular heap, the top part of which lies on the auxiliary loading hopper, and it is necessary for the workhands to distribute the material equally in the press box with best suited tools, and to see, that no pieces of scrap project over the edges of the box, which could get jammed between the lid and the box wall.

The nature of my invention is to move the auxiliary loading hopper along over the press box, while filling its contents into the latter, so that the scrap is automatically and nearly equally distributed in the box, and to fix devices on the edges of the lid and box, to prevent projecting pieces of scrap from getting jammed between the box and lid, so that the work to be done by hand is reduced to a minimum. Similar devices can also be adjusted to the pressure plate, to prevent pieces of scrap from getting jammed between the pressure plate and the box walls, the latter mentioned often being the cause of interruptions by the presses made up till now. Even breakages have been caused by the above.

An embodiment of the invention is shown in the accompanying drawings, in which:—

Fig. 1 is a side elevation showing a schematic reproduction of a scrap bundling press, partially in section, whereby the lid is open.

Fig. 2 is the clamp shown in Fig. 1, side elevation, partially sectional.

Fig. 3 is a plan of the same device.

Fig. 4 is a sectional view of a schematic reproduction of the press box, the lid and one of the pressure plates. The other parts have been left out.

Fig. 5 is a sectional view of a schematic reproduction of a closed press with a special adjustment of the pressure plate, wherein the second pressure plate is left out.

Fig. 6 is a plan of the closed press box with a lid of different construction, wherein the other parts are left out.

The press usually consists of a press box with strong walls, a lid 2 hinged to the press box, a pressure plate 3, which can be moved through a side wall of the press box 1, and which can be driven by an hydraulic ram 4, and pressure plate 5, which is adjusted in a rectangular position to pressure plate 3, and which is driven by an hydraulic ram 6. The devices for controlling the hydraulic rams 4 and 6, and the devices for opening and closing the lid 2 are known, and therefore not illustrated.

On two opposing sides of the press box 1 there are lines 8 adjusted, which project over the edge of the press box. On these lines a trolley can be moved. This trolley is driven over the press box by an hydraulic ram 10, or any other kind of driving device. In the front part of the trolley an axle 11 is adjusted, unto which an auxiliary loading hopper 12 is fixed tightly. Thus, when the axle is turned, the loading hopper is tilted to the front. Both ends of the axle 11 are provided with an arm 13, which is also fixed tightly. The trolley 9 can be pushed by ram 10 into the position marked on the drawings, where the arms 13 knock against the pins 14 at the end of the lines 8, whereby the axle 11 is turned, and the auxiliary loading hopper 12 tilted up.

A rack 16 is fixed on one or both sides of the auxiliary loading hopper 12, which moves through a clamp 17. The teeth of the rack 16 are made so, that they can pass through clamp 17 in an upward direction, but not downwards. When the loading hopper 12

has reached the position marked with lines on the drawings, and has been tilted up by the arms 13, the rack 16 prevents it from falling down again, and holds it in its inclined position, while the trolley is moved back again. As soon as the trolley arrives at the starting position, a disengaging clutch 18, which is fastened to catch 17, knocks against a pin 19, which is fastened on the lines 8, thus disengaging the rack 16, so that the auxiliary loading hopper 12 is allowed to fall back into its original position again.

While the machine is pressing, the auxiliary loading hopper is filled anew with scrap. When the bundle has been pressed and ejected, the pressure plates 3 and 5 drawn back into their starting position, and the lid 2 opened, the trolley 9 is pushed by the ram 10 into the position marked on the drawings, where the arms 13 are pressed against the pins 14, so that the auxiliary loading hopper 12 is tilted up. The scrap filled into the auxiliary loading hopper 12 now begins to fall into press box 1. During this proceeding the trolley 9 is drawn back again, whereby the auxiliary loading hopper 12 remains in its inclined position and the scrap is filled equally into the press box 1. As soon as the disengaging clutch 18 knocks against the pin 19, the auxiliary loading hopper 12 falls back into its original position, and can be filled anew for the next pressing operation.

By the press according to Fig. 1, the edges of the lid do not, as is the case with the presses known up till now, rest on the edges of the press box, but completely enter the press box, when the latter is being shut—Fig. 4. The walls of the press box are therefore higher than the pressure plate 3 by the distance marked 22, and the scrap contained in the press box is partially pressed already by the closing of the lid. The lid of the press is provided with sharpened edges 23, and the press box is also provided with similar sharpened edges 24. These sharpened edges, which are interchangeable, consist of steel blades, and are fastened with screws to the corresponding notches on the edge of the lid and press box. These blades cut all those pieces of scrap, which project over the edges of the press box off, so that it is not necessary to rake the scrap into position after filling it into the press box, in order to get all the pieces of scrap off the edges.

The press box can however also be fitted with a lid, which in the usual manner, is only brought down as far as to the edge of the press box, when shutting same. Fig. 5 shows such a lid. My press is fitted out with a locking device 26, which is pushed under a projecting part 27 on one of the edges of the press box, thus holding the lid down in a closed position. The lid is however a little smaller than the inside of the press box, so that there is a space 28 of a few millimeters

in breadth around the whole circumference of the lid. The lid can therefore also be closed when a few pieces of scrap get between the lid and the box edges.

To prevent pieces of scrap from getting jammed between the box walls and pressure plates, I fit the edges of the pressure plates 3 and 5, or only one of these pressure plates with blades 30, which are of the same construction as the blades 24 and 23 on the press box and lid. These plates cut those pieces of scrap off, which try to get between the pressure plate and the box walls and which would get jammed there.

By a modified construction of my press, as illustrated in Fig. 6, I reduce the height and breadth of the pressure plates 3 and 5 so much, that the outer, larger part 31 of the pressure plate does not touch the walls of the press box, thus leaving a space between the pressure plate and the box walls around the whole circumference. On the inner side of the pressure plate I adjust a part 32, which touches the wall around the whole circumference. The part 32 is relatively thin, and the two parts 31 and 32 can consist of one and the same piece, or part 32 can be screwed unto part 31 as special plate. Such pieces of scrap which try to get jammed between the pressure plate and the box walls can without difficulty get over part 32 into the space between the part 31 and the box wall and fall from there to the outside of the pressure plate, thus preventing delays in pressing or damaging of some of the parts.

What is claimed is:—

1. On a press of the described kind in combination with a press box, a lid, said walls of the press box having openings, pressure plates suitable for being moved through these holes into the press box, devices for moving these pressure plates, lines on said press box, a trolley on these lines, devices for moving this trolley, an auxiliary loading hopper on this trolley, suitable for being tilted around the inside edge of the trolley, devices for tilting the auxiliary loading hopper above the press box, devices for holding this auxiliary loading hopper in a tilted position, and devices for bringing this loading hopper back into its horizontal position.

2. On a press of the described kind, in combination with a press box, a lid for opening and closing the box, some of said walls having openings, pressure plates, designed for being moved through these holes into the press box, devices for moving the pressure plates, lines on said press box, a trolley on these lines, devices for moving this trolley, an axle in the inside end of this trolley, an auxiliary loading hopper fastened on this axle, arms at the end of this axle, pins in the upper end of the press box walls, suitable for coming in contact with these arms, a

clamp on said trolley, a turntable rack on said auxiliary loading hopper, suitable for moving freely through this clamp in an upward direction, and to be held fast by this clamp when moving downwards, and a pin on said lines, outside the press box, suitable for releasing said clamp and rack.

10 3. On a press of the described kind in combination with a press box with walls, a lid, hinged to said walls for opening and closing the box, and suitable for moving in between said walls, sharpened edges of said lid, sharpened edges on said walls, said walls having openings underneath the lid, pressure
15 plates in said openings, devices for moving said pressure plates, lines on said press box, a trolley, suitable for being moved on these lines, devices for moving said trolley, an auxiliary loading hopper on said trolley,
20 suitable for being tilted to the inside, devices for tilting said auxiliary loading hopper when the latter is pushed to the inside, and devices for lowering said auxiliary loading hopper when it is pushed to the outside.

25 4. A press comprising a box opened at the upper end, a lid for opening and closing the box, pressure means associated with the box, a track arranged adjacent the open end of the box, a trolley movable over the track, a
30 hopper pivoted to the trolley to dump material into the box when the trolley is in one position and to be loaded when the trolley is in a second position, means for moving the trolley from one position to another position, means to incline the hopper when the
35 hopper is moved into the first named position, means locking the hopper in said inclined position, and means releasing the hopper from said inclined position when the trolley
40 is moved into the second position.

5. A bundling press comprising an open box, a lid for closing the box by moving partially within the walls of said box, cutting
45 means carried by the box, cutting means carried by the lid and adapted to cooperate with the cutting means of the box when the lid is positioned to close said box for severing the material projecting outwardly of the box, and pressure applying means carried by
50 the box.

6. A bundling press comprising a box having an entrance to receive materials, a lid for closing said entrance, knives carried by the edges of said lid, knives carried by the walls
55 of the box, said knives adapted to cooperate with each other for severing material protruding from the box during the movement of said lid into a position for closing the entrance, and pressure applying means associated with the box.

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