(No Model.)

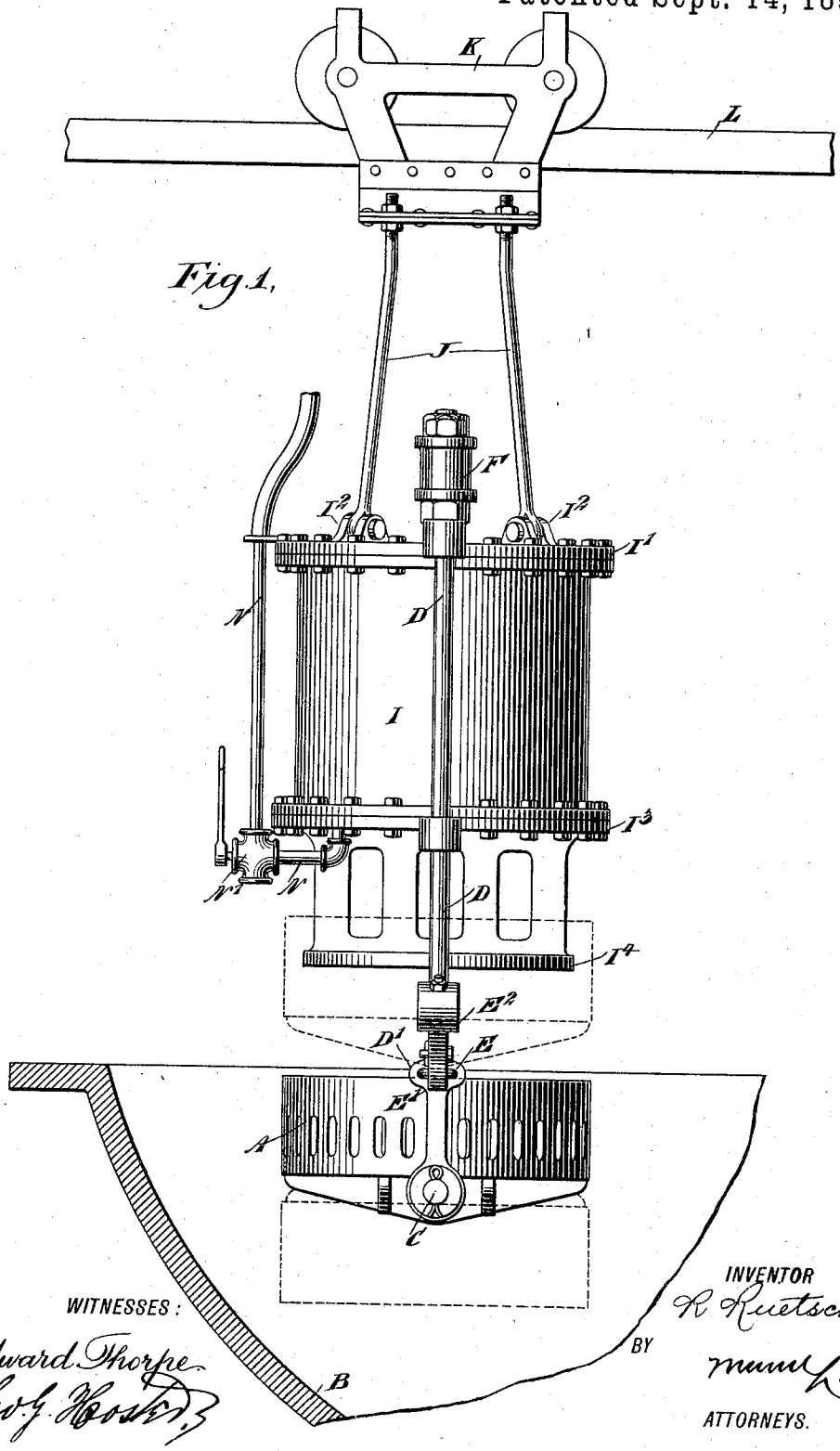
2 Sheets—Sheet 1.

R. RUETSCHI.

SKIM PRESS.

No. 590,116. Patented Sept. 14, 1897.

Fig. 1.



WITNESSES:

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(No Model.)

2 Sheets—Sheet 2.

R. RUETSCHI.

SKIM PRESS.

No. 590,116.

Patented Sept. 14, 1897.

Fig. 2,

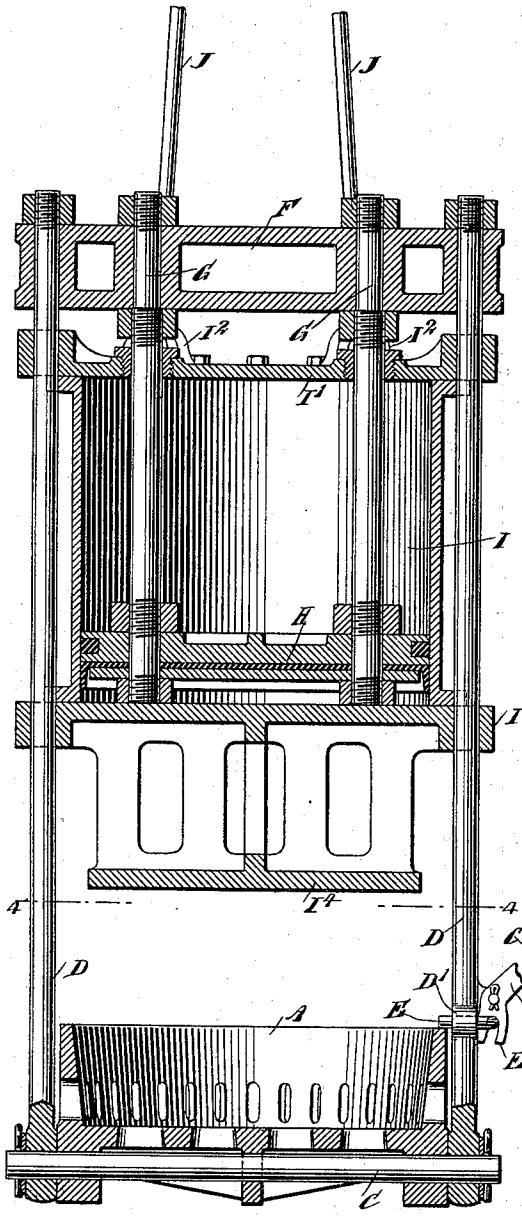

Fig. 3,

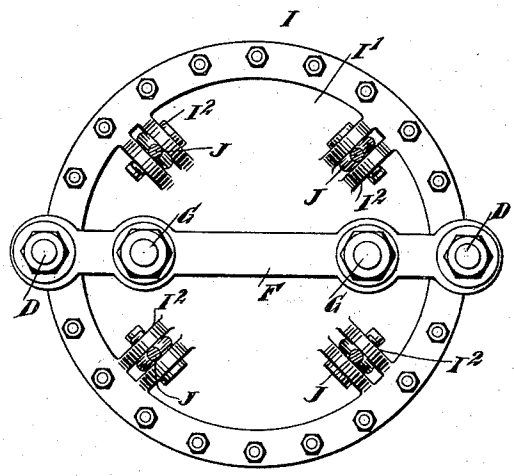

Fig. 4.

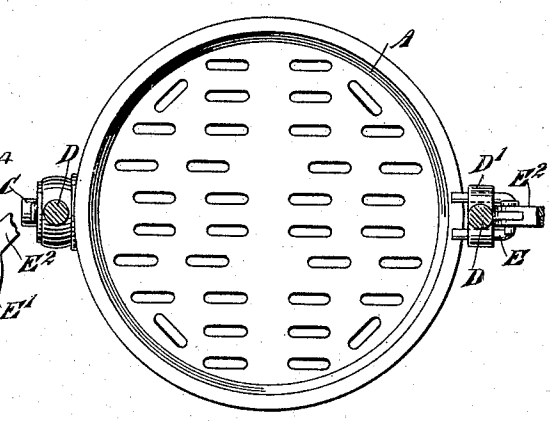

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Fig. 5.

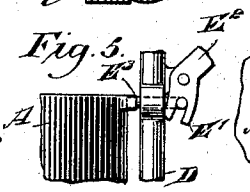
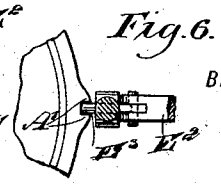


Fig. 6.



INVENTOR

R. Ruetschi

BY

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UNITED STATES PATENT OFFICE.

RUDOLF RUETSCHI, OF ARGENTINE, KANSAS, ASSIGNOR TO THE CONSOLIDATED KANSAS CITY SMELTING AND REFINING COMPANY, OF KANSAS CITY, MISSOURI.

SKIM-PRESS.

SPECIFICATION forming part of Letters Patent No. 590,116, dated September 14, 1897.

Application filed September 18, 1896. Serial No. 606,196. (No model.)

To all whom it may concern.

Be it known that I, RUDOLF RUETSCHI, of Argentine, in the county of Wyandotte and State of Kansas, have invented a new and Improved Skim-Press, of which the following is a full, clear, and exact description.

The invention relates to apparatus for skimming molten metal; and its object is to provide a new and improved press for rapidly and properly separating skim, dross, or metal alloy from molten metal and pressing such skim, dross, or metal alloy to remove any adhering molten metal, and to then remove the pressed product from the kettle and dump it in a convenient place.

The invention consists principally of an open-work basket or cradle adapted to be moved in and out of the kettle to receive and lift the skim, dross, or metal alloy, and a fixed platen adapted to press the skim, dross, or metal alloy when the basket is raised out of the kettle.

The invention also consists of certain parts and details and combinations of the same, as will be fully described hereinafter and then pointed out in the claims.

Reference is to be had to the accompanying drawings, forming a part of this specification, in which similar characters of reference indicate corresponding parts in all the figures.

Figure 1 is a side elevation of the improvement with the kettle in section. Fig. 2 is an enlarged transverse section of the same. Fig. 3 is a plan view of the cylinder with the supporting-links in section. Fig. 4 is a plan view of the basket with the supporting-rods in section. Fig. 5 is a side elevation of a modified form of the locking device for the basket, and Fig. 6 is a plan view of the same.

The improved skim-press is provided with an open-work basket or cradle A, adapted to be passed down into a kettle B, so that the skim on the top of the molten metal can pass into the said basket or be drawn into the same by the use of rabbles, ladles, or other suitable tools.

The basket A is provided at its under side with bearings for a shaft C, held in rods D, adapted to be moved up and down, so as to move the basket A into and out of the kettle. The basket A is adapted to swing on the shaft C, so as to dump the pressed product, as hereinafter more fully described; but normally the basket A is held in an upright position by a staple E, fitted to slide transversely in bearings D′, formed in one of the rods D. The outer end of the staple E is engaged by the forked end E′ of a weighted lever E^2, which normally holds the inner end of the staple in engagement with the top edge of the basket A, so as to lock the basket in position. When the lever E′ is thrown back, the staple E is moved outward in its bearings to release or unlock the basket, so as to permit of turning the same and dumping its contents.

The upper ends of the rods D are secured on a cross-head F, connected by piston-rods G with a piston H, mounted to slide vertically in a cylinder I, formed at its top head I′ with lugs I^2, connected by links J with a carriage K, adapted to travel on an overhead track L. On the lower head I^3 of the cylinder I is held a platen I^4, adapted to pass into the basket A when the latter is raised on the upward movement of the piston H, so as to press the material passed into the basket while the latter is still above the kettle B, so that any molten metal pressed out of the skimmed product passes back into the kettle.

Into the lower end of the cylinder I opens a pipe N, connected with a fluid under pressure, and a suitable three-way valve N′ for controlling the admission and exhaust of the fluid to and from the said cylinder.

The operation is as follows: When it is desired to skim the molten metal contained in the kettle B, then the carriage K, carrying the press, is moved along the overhead track K until the apparatus is directly over the kettle, as shown in Fig. 1. The basket A is then in an uppermost position, as illustrated in dotted lines in Fig. 1, and the operator by manipulating the valve N′ allows the fluid to exhaust from the cylinder I, so that the piston H descends therein by its own weight and that of the parts connected with the piston. The downward movement of the piston H causes a like movement of the cross-head F, the rods D, and the basket A, so that the latter passes into the molten metal and the skim

can pass into the basket A through the open-work bottom and sides, and, if necessary, the skim is drawn into the basket by the use of rabbles or ladles, as previously described. When the basket is filled with the skimmed product, then the fluid under pressure is again admitted to the cylinder I to cause the piston H to move upward and lift the basket A out of the molten metal and the kettle B, the basket then passing upon the platen I^4, which presses the skimmed product and causes any molten metal contained in the skim to pass out and back into the kettle B. When this has been done, then the carriage K is set in motion to carry the entire apparatus to the dumping-place, at which the piston H is lowered to move the basket A from the platen I^4 and to permit the operator to unlock the basket by throwing the lever E^2 inward, as previously described, so that the operator can dump the basket A of its pressed contents. The above-described operation is then repeated—that is, the apparatus is brought back to the kettle B and the basket is lowered, filled, and raised and the product pressed, as above set forth.

By the apparatus described a complete separation of the skim, dross, or alloy from the lead is obtained, owing to the quick action of the press, which brings the material under pressure when hot and soft.

It will further be seen that by the operation of the press the lifting of the skim out of the kettle and pressing it is all done at one operation. By having the platen I^4 directly on the cylinder it is evident that when the basket A with the hot skim product is drawn up and is directly under the cylinder I then the heat emanating from the hot product heats the cylinder and the fluid contained therein, so that the said fluid expands in the cylinder and thus aids the pressing and forcing of the fluid. Thus additional pressure is obtained over the starting-pressure by the expansion of the fluid in the cylinder due to the radiating heat of the skim and the kettle. Instead of a staple E, I may use a single bolt E^3, controlled by the weighted lever E^2 and adapted to engage lugs A′, formed on the outside of the basket A, as shown in Figs. 5 and 6.

Having thus fully described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination of a cylinder, a piston moving in the cylinder, a piston-rod attached to the piston and movable through the upper head of the cylinder, a cross-head attached to the upper end of the piston-rod, and projecting beyond the sides of the cylinder, a rod held vertically movable at each side of the cylinder, the rods being respectively attached to the ends of the cross-head and projecting downward below the cylinder, a shaft held by the lower ends of the rods, a perforated basket rockably mounted on the shaft, a platen carried rigidly by the lower end of the cylinder against which platen the basket is moved as the rods reciprocate, and means for removably locking the basket in place.

2. The combination of two rods, a shaft held transversely between the rods, a basket pivotally mounted on the shaft, a bolt sliding transversely in one rod and capable of engaging the basket to hold the same horizontally on the shaft and a weighted lever fulcrumed to the rod that carries the bolt, the lever having connection with the bolt whereby to keep the same normally engaged with the basket.

RUDOLF RUETSCHI.

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